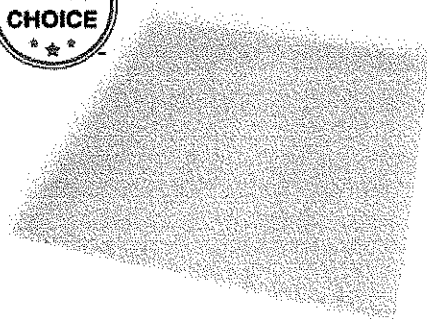


HVAC and Refrigeration \ Air Filters \ Paint Collector Filter Pads and Rolls \ Paint Collector Filter Pads
 \ 20x20x2, Paint Collector Filter Pad, 15 Grams Fiberglass, Package Quantity 50

Print Email

View Product Family



20x20x2, Paint Collector Filter Pad, 15 Grams Fiberglass, Package Quantity 50

AIR HANDLER

Price
\$47.35 / pkg. of 50

☒ Deliver one time only

☐ Auto-Reorder Every 1 Month

Confirm ZIP Code to determine availability.

ZIP Code

43085

Save

1 Add to Cart

+ Add to List

☆☆☆☆☆

Be the first to write a review | Ask & Answer

Item # 2W001

Mfr. Model # 2W001

UNSPSC # 40161524

Catalog Page # 4264

Shipping Weight 5.45 lbs.

How can we improve our Product Images?

Compare

Country of Origin **Varies** | Country of Origin is subject to change.

Note: Product availability is real-time updated and adjusted continuously. The product will be reserved for you when you complete your order. More

Technical Specs

Item	Paint Collector Filter Pad	Nominal Width	20"
Media	15 Grams Fiberglass	Nominal Depth	2"
Nominal Filter Size	20x20x2	Standards	EPA, NFPA #33, OSHA #1910.107
Nominal Height	20"		

question #6

QUESTIONS 12 ,13

WELDING WIRE USED SINCE 9/1/2010			QUESTIONS 12 &13		
WIRE	DESCRIPTION	POUNDS	MONTLY AVG.		
70S6035 /	SOLID WIRE	23495	391.58		
71T1045 2	.045 FLUX CORE	2664	44.40		
KOB309L 3	FLUX CORE	280	4.67		
SVK316LSI 4	SOLID WIRE	132	2.20		

MATERIAL SAFETY DATA SHEET (MSDS)

For Welding Consumables and Related Products
Complies with OSHA Hazard Communication Standard 29 C.F.R. 1910.1200

SECTION I - IDENTIFICATION	
Identity: KOBELCO ELECTRODES FOR GAS SHIELDED ARC WELDING	
Manufacture's Name: KOBE STEEL, LTD. Supplier's Name: KOBE STEEL, LTD.	Emergency Telephone No: +81-3-5739-6331
Supplier's Address: 5-9-12 Kitashinagawa Shinagawa-Ku Tokyo JAPAN	Telephone No. for Information: +81-3-5739-6331 Facsimile No. : +81-3-5739-6960
Product Trade Designation MG-51T SE-A50 MG-50T	Product Classifications AWS A.518 ER70S-6 AWS A.518 ER70S-G

SECTION II - HAZARDOUS INGREDIENTS							
IMPORTANT: THIS SECTION COVERS THE MATERIALS FROM WHICH THE PRODUCT IS MANUFACTURED. THE FUMES AND GASES PRODUCED DURING WELDING WITH NORMAL USE OF THIS PRODUCT ARE COVERED IN SECTION V. THE TERM "HAZARDOUS" IN "HAZARDOUS MATERIALS" SHOULD BE INTERPRETED AS A TERM REQUIRED AND DEFINED IN OSHA HAZARD COMMUNICATION STANDARD (29 C.F.R. 1910.1200) AND IT DOES NOT NECESSARILY IMPLY THE EXISTENCE OF ANY HAZARD.							
Ingredient	(CAS No.)	APPROX wt (%)	(1) TLV (mg/m ³)	Ingredient	(CAS No.)	APPROX wt (%)	(1) TLV (mg/m ³)
Iron	(7439-89-6)	Balance	5	Copper	(7440-50-8)	≤0.50	(N/A)
Carbon	(7440-44-0)	≤0.15	(N/A)				
Manganese	(7439-96-5)	≤1.85	0.2				
Silicon	(7440-21-3)	≤1.15	10				
(1) American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV [R]).							

SECTION III - PHYSICAL DATA
NOT APPLICABLE

SECTION IV - FIRE AND EXPLOSION HAZARD DATA
Non-Flammable: Welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VII.

SECTION V - REACTIVITY DATA

HAZARDOUS DECOMPOSITION PRODUCTS:

Welding fumes cannot be classified simply. Their composition and quantity are dependent upon the metal being welded, the process, procedures and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), number of welds and volume of work area, quality and amount of ventilation, position of welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products are different in percent and form from the ingredients listed in Section II. Fume and gas decomposition products, not the ingredients in the electrode, are important. Decomposition products include those originating from the volatilization, reaction, or oxidation of the materials shown in Section II plus those from base metal, coating, etc. as noted above. These components are virtually always present as complex compounds and not as metals (Characterization of Arc Welding Fume: American Welding Society).

Reasonably expected fume constituents from these products would include fluorides and complex oxides of iron, manganese, silicon, and, when present, nickel, chromium, molybdenum, and copper. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welders helmet, if worn, or in the worker's breathing zone. ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

SECTION VI - HEALTH HAZARD DATA

Threshold Limit Value: The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified) is 5mg/m³. The ACGIH 1984-1985 preface states: "The TLV-TWA should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentration." See Section V for specific fume constituents which may modify this TLV.

Effects of Overexposure: FUMES AND GASES can be dangerous to your health.

SHORT-TERM (ACUTE) OVEREXPOSURE to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes.

LONG TERM (CHRONIC) OVEREXPOSURE may lead to siderosis (iron deposits in the lung) and is believed by some investigators to affect pulmonary function.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill. See Section VII.

Emergency & First Aid Procedures: Call for medical aid. Employ first aid techniques recommended by the American Red Cross.

Carcinogenicity: NOT APPLICABLE

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE/APPLICABLE CONTROL MEASURES

Read and understand the manufacture's instructions and the precautionary label on this product. See American National Standard Z-49.1, Safety in Welding and Cutting, published by the American Welding Society, P.O. Box 351040, Miami, FL 33135 and OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Printing Office, Washington, D.C. 20402 for more detail on many of the following:

Ventilation: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes.

Respiratory Protection: Use respirable fume respirator or air supplies respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV.

Eye Protection: Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

Protective Clothing: Wear head, hand and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. At a minimum, this includes welder's gloves and a protective face shield and may include arm protectors, aprons hats, shoulder protection, as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

Procedure for Cleanup of Spills or Leaks: NOT APPLICABLE

Waste Disposal Method: Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State and Local regulations

2
(2 pages)

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Trade designation

DW-50

Recommended use

For welding

Restrictions on use

Do not use except for welding.

Manufacturer

Manufacturer's Name: KOBE STEEL, LTD.
Address: 5-9-12 Kitashinagawa Shinagawa-Ku Tokyo JAPAN
Phone number: +81-3-5739-6331
Fax number: +81-3-5739-6960
Emergency phone number: +81-3-5739-6331

Distributor

Distributor's Name: KOBELCO WELDING OF AMERICA INC.
Address: 4755 Alpine Rd. Ste 250 Stafford, Texas
Phone number: 281-240-5600
Fax number: 281-240-5625
Emergency phone number: 281-240-5600

2. HAZARDS IDENTIFICATION

Classification according to OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Controlled Products Regulations.

Hazard classification

Classification not possible as hazardous according to GHS classification.

Label elements

Symbol: Not applicable
Signal word: Not applicable
Hazard statement: Not applicable
Precautionary statement: Not applicable

Other hazards which do not classified in GHS classification

General: When this product is used in a welding process the hazards are electric shock, fumes, gases, radiation, spatter, slag and heat. Read and understand this Safety Data Sheets and the manufacturer's instructions and the precautionary labels before using this product.

Shock: Electrical Shock can kill.

Radiation: Arc rays can injure eyes and burn skin.

Fumes: Overexposure to welding fumes result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect respiratory system and nervous system.

Substance(s) formed under the conditions of use

The welding fumes produced from this welding electrode may contain the listed constituent(s) of Sec.3 and/or their complex metallic oxides as well as solid particles or other constituents from the consumables, base metal, or base metal coating not listed Sec.3. **The welding fumes may contain Mn, Ni, Cr(VI) and their compounds.** Refer to Sec.8 and 10.

Gases: Gases may cause gas poisoning. Under conditions of use, gases may contain carbon oxides, nitrogen oxides, ozone etc. Refer to Sec.8 and 10.

Spatter, slag: Spatter, slag can damage eyes.

Heat: Spatter, slag, melting metal, hot welds, arc rays and sparks can cause burn injuries and ignite combustibles and flammable materials

3. COMPOSITION, INFORMATION ON INGREDIENTS

Substance/Mixture

Mixture

Chemical name	CAS No.	Concentration range (%)
Iron	7439-89-6	Balance
Titanium dioxide	13463-67-7	< 10
Manganese	7439-96-5	< 3
Silicon	7440-21-3	< 1
Silicon dioxide	7631-86-9	< 1
Magnesium	7439-95-4	< 1
Aluminum oxide	1344-28-1	< 1
Zirconium oxide	1314-23-4	< 1

4. FIRST AID MEASURES

Description of first aid measures

- Inhalation:** Remove person to fresh air and keep comfortable for breathing and get medical advice/attention. If breathing has stopped, perform artificial respiration and get immediate medical advice/attention.
- Skin contact:** Take off contaminated clothing and rinse skin with soap and water [or shower]. If skin irritation occurs, get medical advice/attention. For reddened or blistered skin, or thermal burns, get medical advice/attention.
- Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
Arc rays can injure eyes. If exposed to arc rays, move victim to dark room, remove contact lenses as necessary for treatment, cover eyes with a padded dressing and rest. If symptoms persist, get medical advice/attention.
- Electric shock:** Disconnect and turn off power. If the victim is semi- or unconscious, open the airway. If the victim cannot breathe, give artificial respiration. If there is no pulse, massage the chest and apply artificial respiration.
- Ingestion:** Unlikely due to form of product, except for granular materials. If ingested, Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

Most important symptoms/effects, acute and delayed

- Symptoms:** Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).
Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects. Refer to Section 11 for more information.
- Hazards:** Welding hazards are complex and may include physical and health hazards such as but not limited to electric shock, physical strains, radiation burns (eye flash), thermal burns due to hot metal or spatter and potential health effects of overexposure to welding fume or dust. Refer to Section 11 for more information.

Indication of immediate medical attention and special treatment needed Treatment

Treat Symptomatically.

5. FIRE-FIGHTING MEASURES

General fire hazards

As shipped, this product is nonflammable. However, welding arc and sparks can ignite combustibles and flammable products. Read and understand American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" before using this product.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: As shipped, the product will not burn. In case of fire in the surroundings, use CO₂, powder or water spray.

Unsuitable extinguishing media: None known

Specific hazards arising from the chemical

None known

Special protective equipment and precautions for fire-fighters

- Special protective equipment:** Selection of respiratory protection for fire-fighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
- Special precautions:** Use standard firefighting procedures and consider the hazards of other involved materials.

6 ACCIDENTAL RELEASE MEASURES

General

Unlikely due to form of product, except for granular materials. The welding fumes and slags may be released.

Personal precautions, protective equipment and emergency procedures

If airborne dust and/or fume is present, use adequate engineering controls and, if needed, personal protection to prevent overexposure. Refer to recommendations in Section 8.

Methods and material for containment and cleaning up

Clean up spills immediately, observing precautions in the personal protective equipment in Section 8. Avoid generating dust. Prevent product from entering any drains, sewers or water sources. Refer to Section 13 for proper disposal.

Environmental precautions

Avoid release to the environment. Prevent further leakage or spillage if safe to do so.

7 HANDLING AND STORAGE

Precautions for safe handling

- Reduction of fumes and dusts:** Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes"
- Prevention of electric shock:** Do not touch live electrical parts such as the welding wire and welding machine terminals. Wear insulated gloves and safety boots. If welding must be performed in damp locations or with wet clothing, on metal structures or when in cramped positions such as sitting, kneeling or lying, or if there is a high risk of unavoidable or accidental contact with workpiece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control.
- Prevention of fire and explosion:** Remove flammable and combustible materials and liquids.
- Prevention of harm when handling welding consumables:** Handle with care to avoid stings and cuts. Hold the welding wire manually when loosening the wire.

Conditions for safe storage, including any incompatibilities

Store welding consumables inside a room without humidity. Do not store welding consumables directly on the ground or beside a wall. Keep welding consumables away from chemical substances like acids which could cause chemical reactions. Store in accordance with local/regional/national regulations.

8 EXPOSURE CONTROLS, PERSONAL PROTECTION

Control parameters

For substances may be included in welding fumes, gases and flux, occupational exposure values are shown in Annex. **Keep exposure below exposure limits.** Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) are values published by the American Conference of Government Industrial Hygienists (ACGIH). ACGIH Statement of Positions Regarding the TLVs and BEIs states that the TLV-TWA should be used as a guide in the control of health hazards and should not be used to indicate a fine line between safe and dangerous exposures. See Section 10 for information on potential fume constituents of health interest.

Appropriate engineering controls

- Ventilation:** Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases below the exposure limits in the worker's breathing zone and the general area. Keep exposure as low as possible.
- Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the

worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.3 and F1.5, available from the American Welding Society, www.aws.org.

Individual protection measures

Eye protection:	Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.
Hand protection:	Wear protective gloves. Suitable gloves can be recommended by the glove supplier.
Protective Clothing:	Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Wear dry gloves free of holes or split seams. Train the welder not to permit electrically live parts or electrodes to contact skin or clothing or gloves if they are wet. Insulate yourself from the work piece and ground using dry plywood, rubber mats or other dry insulation.
Respiratory protection:	Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. Use respirable fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below exposure limits.
Ear protection:	Wear earplugs or earmuffs when using engine driven arc welding machine or pulsed arc welding machine that generates high-level noise.
Hygiene measures:	Do not eat, drink or smoke when using the product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Solid
Color:	Silver or Copper
Odor:	Odorless
Odor threshold:	No further relevant information available
pH:	Not applicable
Melting point/freezing point:	No further relevant information available
Initial boiling point and boiling range:	No further relevant information available
Flash point:	Not applicable
Evaporation rate:	Not applicable
Flammability:	No further relevant information available
Upper/lower flammability or explosive limits:	No further relevant information available
Vapor pressure:	Not applicable
Vapor density:	Not applicable
Solubility(ies)	No further relevant information available
Partition coefficient (n-octanol/water):	No further relevant information available
Auto-ignition temperature:	No further relevant information available
Decomposition temperature:	No further relevant information available
Viscosity:	Not applicable

STABILITY AND REACTIVITY

Reactivity

Non-reactive under normal conditions of storage and transport.

Chemical stability

Stable under normal conditions of storage and transport.

Possibility of hazardous reactions

Contact with acids, alkalis and oxidizing agents could cause reaction and generation of gas.

Conditions to avoid

Avoid heat or contamination of acids, alkalis and oxidizing agents.

Incompatible materials

Avoid contact with acids, alkalis and oxidizing agents.

Hazardous decomposition products

Welding fumes and gases are generated as byproducts during the welding. The composition and quantity of fumes and gases cannot be recognized simply. The composition and quantity of the fumes and gases are dependent upon the base metal being welded (included coating such as solvent, paint, plating), the welding process, welding procedure, welding parameter and electrodes used. Other conditions which also influence the quantity of the fumes and gases to which workers may be exposed include the number of welding spots, the volume of the worker area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.)

The fumes and gases are different in percent and form from the ingredients listed in Section 3. The fumes and gases include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc., as noted above. Reasonably expected fume constituents produced during arc welding include the oxides of iron, manganese and other metals present in the welding consumable or base metal. And, it is known that these metal oxides are complex oxides, not single compounds. Hexavalent chromium compounds may be in the welding fume of consumables or base metals which contain chromium. Nickel compounds may be in the welding fume of consumables or base metals which contain Nickel. Gaseous and particulate fluoride may be in the welding fume of consumables which contain fluoride. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

II. TOXICOLOGICAL INFORMATION

General

Classification not possible as product. Refer to Sec.2. Inhalation of welding fumes and gases can be dangerous to your health. The composition and quantity of both are dependent upon the material being worked, the process, procedures, and consumables used. Refer to Sec.10.

Acute toxicity

Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).

Cr: The presence of chromium/chromate in welding fumes can cause irritation of nasal membranes and skin.

Ni: The presence of nickel compounds in fume can cause metallic taste, nausea, tightness of chest, fever.

F: Exposure to the fluoride ion in welding fumes may cause hypocalcemia-calcium deficiency in the blood that can result in muscle cramps and inflammation and necrosis of mucous membranes.

Gases: Some toxic gases associated with welding may cause pulmonary edema, asphyxiation, and death.

Chronic toxicity

Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis, pneumoconiosis and other pulmonary effects. The severity of the change is proportional to the length of the exposure. The changes may be caused by non-work factors such as smoking, etc.

Ni: Long term overexposure to nickel fumes may also cause pulmonary fibrosis and edema.

Cr: Chromates may cause ulceration, perforation of the nasal septum, and severe irritation of the bronchial tubes and lungs. Liver damage have also been reported. Chromates contain the hexavalent form of chromium.

Mn: Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languor, sleepiness, muscular weakness, emotional disturbances and spastic gait. The effect of manganese on the nervous system is irreversible.

Cu: Overexposure to copper fumes may lead to copper poisoning, resulting in hemolytic anemia and liver, kidney and spleen damage.

Fe: Inhalation of too much iron oxide fume over a long time can cause siderosis, sometimes called "iron pigmentation" of the lung, which can be seen on a chest x-ray but causes little or no disability. Chronic overexposure to iron (>50-100mg Fe per day) can result in pathological deposition of iron in body tissues, symptoms of which are fibrosis of the pancreas, diabetes mellitus, and liver cirrhosis.

SiO₂: Respiratory exposure to the crystalline silica present in this welding electrode is not anticipated during normal use. Respiratory overexposure to airborne crystalline silica is known to cause silicosis, a form of disabling pulmonary fibrosis which can be progressive and may lead to death.

F: Chronic fluoride absorption can result in osseous fluorosis, increased radiographic density of the bones and mottling of the teeth.

Carcinogenicity

Welding fumes (not otherwise specified) are possibly carcinogenic to humans. Welding fumes is on the IARC lists as posing a cancer risk.

SiO₂: Crystalline silica is on the IARC (International Agency for Research on Cancer) and NTP (National Toxicology Program) lists as posing a cancer risk to humans.

Ni: Nickel and its compounds are on the IARC and NTP lists as posing respiratory cancer risk.

Cr: Hexavalent chromium and its compounds are on the IARC and NTP lists as posing a cancer risk to humans.

Arc Skin cancer has been reported.

rays:

Respiratory or Skin Sensitization

Ni: Nickel and its compounds are skin sensitizers with symptoms ranging from slight itch to severe dermatitis.

Cr: Chromates may cause allergic reactions, including skin rash. Asthma has been reported in some sensitized individuals. Skin contact may result in irritation, ulceration, sensitization, and contact dermatitis.

Others

Organic polymers may be used in the manufacture of various welding consumables. Overexposure to their decomposition byproducts may result in a condition known as polymer fume fever. Polymer fume fever usually occurs within 4 to 8 hours of exposure with the presentation of flu like symptoms, including mild pulmonary irritation with or without an increase in body temperature. Signs of exposure can include an increase in white blood cell count. Resolution of symptoms typically occurs quickly, usually not lasting longer than 48 hours.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product: No further relevant information available

Persistence and degradability

Product: No further relevant information available

Bioaccumulative potential

Product: No further relevant information available

Mobility in soil

Product: No further relevant information available

13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized whenever possible. When practical, recycle in an environmentally acceptable, regulatory compliant manner. Dispose of non-recyclable products in accordance with all applicable National, State, and Local requirements. Discharge, treatment, or disposal may be subject to National, State, or Local laws.

14. TRANSPORT INFORMATION

UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Transport in bulk (according to Annex II of MARPOL73/78 and the IBC Code):	Not applicable
Special precautions for user:	Not applicable

15. REGULATORY INFORMATION

Regulations of each country are applied to substance/mixtures.

16. OTHER INFORMATION

Reference

American National Standard (ANSI) Z49.1 "Safety in Welding, Cutting, and Allied Processes"

Date of issue
2015-05-20

Disclaimer

The information given in this SDS is based on the present level of our knowledge and experience. This information is believed to be accurate as of the revision date shown above. However, no warranty, expressed or implied, is given. Because the conditions or methods of use are beyond KOBE STEEL, LTD.'s control, we assume no liability resulting from the use of this product. Regulatory requirements are subject to change and may differ between various locations. Compliance with all applicable Federal, State, Provincial, and local laws and regulations remain the responsibility of the user. If necessary, consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product.

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Trade designation

DW-309L

Recommended use

For welding

Restrictions on use

Do not use except for welding.

Manufacturer

Manufacturer's Name: KOBE STEEL, LTD.

Address: 5-9-12 Kitashinagawa Shinagawa-Ku Tokyo JAPAN

Phone number: +81-3-5739-6331

Fax number: +81-3-5739-6960

Emergency phone number: +81-3-5739-6331

Distributor

Distributor's Name: KOBELCO WELDING OF AMERICA INC.

Address: 4755 Alpine Rd. Ste 250 Stafford, Texas

Phone number: 281-240-5600

Fax number: 281-240-5625

Emergency phone number: 281-240-5600

2. HAZARDS IDENTIFICATION

Classification according to OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Canadian Controlled Products Regulations.

Hazard classification

Classification not possible as hazardous according to GHS classification.

Label elements

Symbol: Not applicable

Signal word: Not applicable

Hazard statement: Not applicable

Precautionary statement: Not applicable

Other hazards which do not classified in GHS classification

General: When this product is used in a welding process the hazards are electric shock, fumes, gases, radiation, spatter, slag and heat. Read and understand this Safety Data Sheets and the manufacturer's instructions and the precautionary labels before using this product.

Shock: Electrical Shock can kill.

Radiation: Arc rays can injure eyes and burn skin.

Fumes: Overexposure to welding fumes result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect respiratory system and nervous system.

Substance(s) formed under the conditions of use

The welding fumes produced from this welding electrode may contain the listed constituent(s) of Sec.3 and/or their complex metallic oxides as well as solid particles or other constituents from the consumables, base metal, or base metal coating not listed Sec.3. **The welding fumes may contain Mn, Ni, Cr(VI) and their compounds.** Refer to Sec.8 and 10.

Gases: Gases may cause gas poisoning. Under conditions of use, gases may contain carbon oxides, nitrogen oxides, ozone etc. Refer to Sec.8 and 10.

Spatter, slag: Spatter, slag can damage eyes.

Heat: Spatter, slag, melting metal, hot welds, arc rays and sparks can cause burn injuries and ignite combustibles and flammable materials

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Mixture

Mixture

Chemical name	CAS No.	Concentration range (%)
Iron	7439-89-6	Balance
Chromium	7440-47-3	18-28
Nickel	7440-02-0	8-18
Silicon dioxide	7631-86-9	< 5
Manganese	7439-96-5	< 3
Zirconium oxide	1314-23-4	< 3
Titanium dioxide	13463-67-7	< 3
Aluminum oxide	1344-28-1	< 1
Silicon	7440-21-3	< 1
Sodium oxide	1313-59-3	< 1
Magnesium oxide	1309-48-4	< 1
Potassium oxide	12136-45-7	< 1

4. FIRST AID MEASURES

Description of first aid measures

- Inhalation:** Remove person to fresh air and keep comfortable for breathing and get medical advice/attention. If breathing has stopped, perform artificial respiration and get immediate medical advice/attention.
- Skin contact:** Take off contaminated clothing and rinse skin with soap and water [or shower]. If skin irritation occurs, get medical advice/attention. For reddened or blistered skin, or thermal burns, get medical advice/attention.
- Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.
 Arc rays can injure eyes. If exposed to arc rays, move victim to dark room, remove contact lenses as necessary for treatment, cover eyes with a padded dressing and rest. If symptoms persist, get medical advice/attention.
- Electric shock:** Disconnect and turn off power. If the victim is semi- or unconscious, open the airway. If the victim cannot breathe, give artificial respiration. If there is no pulse, massage the chest and apply artificial respiration.
- Ingestion:** Unlikely due to form of product, except for granular materials. If ingested, Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.

Most important symptoms/effects, acute and delayed

- Symptoms:** Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).
 Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects. Refer to Section 11 for more information.
- Hazards:** Welding hazards are complex and may include physical and health hazards such as but not limited to electric shock, physical strains, radiation burns (eye flash), thermal burns due to hot metal or spatter and potential health effects of overexposure to welding fume or dust. Refer to Section 11 for more information.

Indication of immediate medical attention and special treatment needed Treatment

Treat Symptomatically.

5. FIRE-FIGHTING MEASURES

General fire hazards

As shipped, this product is nonflammable. However, welding arc and sparks can ignite combustibles and flammable products. Read and understand American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes" before using this product.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: As shipped, the product will not burn. In case of fire in the surroundings, use CO₂, powder or water spray.

Unsuitable extinguishing media: None known

Specific hazards arising from the chemical

None known

Special protective equipment and precautions for fire-fighters

Special protective equipment: Selection of respiratory protection for fire-fighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special precautions: Use standard firefighting procedures and consider the hazards of other involved materials.

6. ACCIDENTAL RELEASE MEASURES

General

Unlikely due to form of product, except for granular materials. The welding fumes and slags may be released.

Personal precautions, protective equipment and emergency procedures

If airborne dust and/or fume is present, use adequate engineering controls and, if needed, personal protection to prevent overexposure. Refer to recommendations in Section 8.

Methods and material for containment and cleaning up

Clean up spills immediately, observing precautions in the personal protective equipment in Section 8. Avoid generating dust. Prevent product from entering any drains, sewers or water sources. Refer to Section 13 for proper disposal.

Environmental precautions

Avoid release to the environment. Prevent further leakage or spillage if safe to do so.

7. HANDLING AND STORAGE

Precautions for safe handling

Reduction of fumes and dusts: Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Read and understand the manufacturer's instruction and the precautionary label on the product. See American National Standard Z49.1, "Safety In Welding, Cutting and Allied Processes"

Prevention of electric shock: Do not touch live electrical parts such as the welding wire and welding machine terminals. Wear insulated gloves and safety boots. If welding must be performed in damp locations or with wet clothing, on metal structures or when in cramped positions such as sitting, kneeling or lying, or if there is a high risk of unavoidable or accidental contact with workpiece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control.

Prevention of fire and explosion: Remove flammable and combustible materials and liquids.

Prevention of harm when handling welding consumables: Handle with care to avoid stings and cuts. Hold the welding wire manually when loosening the wire.

Conditions for safe storage, including any incompatibilities

Store welding consumables inside a room without humidity. Do not store welding consumables directly on the ground or beside a wall. Keep welding consumables away from chemical substances like acids which could cause chemical reactions. Store in accordance with local/regional/national regulations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

For substances may be included in welding fumes, gases and flux, occupational exposure values are shown in Annex. **Keep exposure below exposure limits.** Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) are values published by the American Conference of Government Industrial Hygienists (ACGIH). ACGIH Statement of Positions Regarding the TLVs and BEIs states that the TLV-TWA should be used as a guide in the control of health hazards and should not be used to indicate a fine line between safe and dangerous exposures. See Section 10 for information on potential fume constituents of health interest.

Appropriate engineering controls

Ventilation: Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases

below the exposure limits in the worker's breathing zone and the general area. Keep exposure as low as possible.

Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.2, F1.3 and F1.5, available from the American Welding Society, www.aws.org.

Individual protection measures

Eye protection:	Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.
Hand protection:	Wear protective gloves. Suitable gloves can be recommended by the glove supplier.
Protective Clothing:	Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Wear dry gloves free of holes or split seams. Train the welder not to permit electrically live parts or electrodes to contact skin or clothing or gloves if they are wet. Insulate yourself from the work piece and ground using dry plywood, rubber mats or other dry insulation.
Respiratory protection:	Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. Use respirable fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below exposure limits.
Ear protection:	Wear earplugs or earmuffs when using engine driven arc welding machine or pulsed arc welding machine that generates high-level noise.
Hygiene measures:	Do not eat, drink or smoke when using the product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Solid
Color:	Silver or Copper
Odor:	Odorless
Odor threshold:	No further relevant information available
pH:	Not applicable
Melting point/freezing point:	No further relevant information available
Initial boiling point and boiling range:	No further relevant information available
Flash point:	Not applicable
Evaporation rate:	Not applicable
Flammability:	No further relevant information available
Upper/lower flammability or explosive limits:	No further relevant information available
Vapor pressure:	Not applicable
Vapor density:	Not applicable
Solubility(ies)	No further relevant information available
Partition coefficient (n-octanol/water):	No further relevant information available
Auto-ignition temperature:	No further relevant information available
Decomposition temperature:	No further relevant information available
Viscosity:	Not applicable

10. STABILITY AND REACTIVITY

Reactivity

Non-reactive under normal conditions of storage and transport.

Chemical stability

Stable under normal conditions of storage and transport.

Possibility of hazardous reactions

Contact with acids, alkalis and oxidizing agents could cause reaction and generation of gas.

Conditions to avoid

Avoid heat or contamination of acids, alkalis and oxidizing agents.

Incompatible materials

Avoid contact with acids, alkalis and oxidizing agents.

Hazardous decomposition products

Welding fumes and gases are generated as byproducts during the welding. The composition and quantity of fumes and gases cannot be recognized simply. The composition and quantity of the fumes and gases are dependent upon the base metal being welded (included coating such as solvent, paint, plating), the welding process, welding procedure, welding parameter and electrodes used. Other conditions which also influence the quantity of the fumes and gases to which workers may be exposed include the number of welding spots, the volume of the worker area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.)

The fumes and gases are different in percent and form from the ingredients listed in Section 3. The fumes and gases include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc., as noted above. Reasonably expected fume constituents produced during arc welding include **the oxides of iron, manganese and other metals** present in the welding consumable or base metal. And, it is known that these metal oxides are complex oxides, not single compounds. **Hexavalent chromium compounds** may be in the welding fume of consumables or base metals which contain chromium. **Nickel compounds** may be in the welding fume of consumables or base metals which contain Nickel. Gaseous and particulate fluoride may be in the welding fume of consumables which contain fluoride. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

II. TOXICOLOGICAL INFORMATION

General

Classification not possible as product. Refer to Sec.2. Inhalation of welding fumes and gases can be dangerous to your health. The composition and quantity of both are dependent upon the material being worked, the process, procedures, and consumables used. Refer to Sec.10.

Acute toxicity

Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).

Cr: The presence of chromium/chromate in welding fumes can cause irritation of nasal membranes and skin.

Ni: The presence of nickel compounds in fume can cause metallic taste, nausea, tightness of chest, fever.

F: Exposure to the fluoride ion in welding fumes may cause hypocalcemia-calcium deficiency in the blood that can result in muscle cramps and inflammation and necrosis of mucous membranes.

Gases: Some toxic gases associated with welding may cause pulmonary edema, asphyxiation, and death.

Chronic toxicity

Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis, pneumoconiosis and other pulmonary effects. The severity of the change is proportional to the length of the exposure. The changes may be caused by non-work factors such as smoking, etc.

Ni: Long term overexposure to nickel fumes may also cause pulmonary fibrosis and edema.

Cr: Chromates may cause ulceration, perforation of the nasal septum, and severe irritation of the bronchial tubes and lungs. Liver damage have also been reported. Chromates contain the hexavalent form of chromium.

Mn: Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languor, sleepiness, muscular weakness, emotional disturbances and spastic gait. The effect of manganese on the nervous system is irreversible.

Cu: Overexposure to copper fumes may lead to copper poisoning, resulting in hemolytic anemia and liver, kidney and spleen damage.

Fe: Inhalation of too much iron oxide fume over a long time can cause siderosis, sometimes called "iron pigmentation" of the lung, which can be seen on a chest x-ray but causes little or no disability. Chronic overexposure to iron (>50-100mg Fe per day) can result in pathological deposition of iron in body

tissues, symptoms of which are fibrosis of the pancreas, diabetes mellitus, and liver cirrhosis.

- SiO₂:** Respiratory exposure to the crystalline silica present in this welding electrode is not anticipated during normal use. Respiratory overexposure to airborne crystalline silica is known to cause silicosis, a form of disabling pulmonary fibrosis which can be progressive and may lead to death.
- F:** Chronic fluoride absorption can result in osseous fluorosis, increased radiographic density of the bones and mottling of the teeth.

Carcinogenicity

Welding fumes (not otherwise specified) are possibly carcinogenic to humans. Welding fumes is on the IARC lists as posing a cancer risk.

SiO₂: Crystalline silica is on the IARC (International Agency for Research on Cancer) and NTP (National Toxicology Program) lists as posing a cancer risk to humans.

Ni: Nickel and its compounds are on the IARC and NTP lists as posing respiratory cancer risk.

Cr: Hexavalent chromium and its compounds are on the IARC and NTP lists as posing a cancer risk to humans.

Arc Skin cancer has been reported.

rays:

Respiratory or Skin Sensitization

Ni: Nickel and its compounds are skin sensitizers with symptoms ranging from slight itch to severe dermatitis.

Cr: Chromates may cause allergic reactions, including skin rash. Asthma has been reported in some sensitized individuals. Skin contact may result in irritation, ulceration, sensitization, and contact dermatitis.

Others

Organic polymers may be used in the manufacture of various welding consumables. Overexposure to their decomposition byproducts may result in a condition known as polymer fume fever. Polymer fume fever usually occurs within 4 to 8 hours of exposure with the presentation of flu like symptoms, including mild pulmonary irritation with or without an increase in body temperature. Signs of exposure can include an increase in white blood cell count. Resolution of symptoms typically occurs quickly, usually not lasting longer than 48 hours.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product: No further relevant information available

Persistence and degradability

Product: No further relevant information available

Bioaccumulative potential

Product: No further relevant information available

Mobility in soil

Product: No further relevant information available

13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized whenever possible. When practical, recycle in an environmentally acceptable, regulatory compliant manner. Dispose of non-recyclable products in accordance with all applicable National, State, and Local requirements. Discharge, treatment, or disposal may be subject to National, State, or Local laws.

14. TRANSPORT INFORMATION

UN number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Transport in bulk (according to Annex II of MARPOL/73/78 and the IBC Code):	Not applicable
Special precautions for user:	Not applicable

15. REGULATORY INFORMATION

Regulations of each country are applied to substance/mixtures.

16. OTHER INFORMATION

Reference

American National Standard (ANSI) Z49.1 "Safety in Welding, Cutting, and Allied Processes"

Date of issue

2015-05-20

Disclaimer

The information given in this SDS is based on the present level of our knowledge and experience. This information is believed to be accurate as of the revision date shown above. However, no warranty, expressed or implied, is given. Because the conditions or methods of use are beyond KOBE STEEL, LTD.'s control, we assume no liability resulting from the use of this product. Regulatory requirements are subject to change and may differ between various locations. Compliance with all applicable Federal, State, Provincial, and local laws and regulations remain the responsibility of the user. If necessary, consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product.

Annex

OCCUPATIONAL EXPOSURE VALUES ¹⁾ TWA ¹¹⁾ (mg/m ³)				
SUBSTANCE [CAS No.] ²⁾	ACGIH ³⁾ TLVs ⁴⁾	OSHA ⁵⁾ PELs ⁶⁾	NIOSH ⁷⁾ RELs ⁸⁾	DFG ⁹⁾ MAKs ¹⁰⁾
Aluminum [7429-90-5] metal and insoluble compounds	1 ¹²⁾	5 ¹²⁾	5 ¹²⁾	4 ¹³⁾ , [1.5 ¹²⁾]
Aluminum [7429-90-5] metal and insoluble compounds, total dust	---	15	10	---
Aluminum [7429-90-5] welding fumes, as Al	---	---	5	---
Aluminum oxide [1344-28-1]	---	5 ¹²⁾	---	4 ¹³⁾ , [1.5 ¹²⁾]
Aluminum oxide [1344-28-1], total dust	---	15	---	---
Boron oxide [1303-86-2]	10	---	10	---
Boron oxide [1303-86-2], total dust	---	15	---	---
Barium [7440-39-3] and soluble compounds, as Ba	0.5	0.5	0.5	---
Barium compounds, soluble, as Ba	---	---	---	0.5 ¹³⁾
Calcium oxide [1305-78-8]	2	5	2	1 ¹³⁾
Calcium carbonate [1317-65-3] (NIOSH : includes [471-34-1])	---	5 ¹²⁾	5 ¹²⁾	---
Calcium carbonate [1317-65-3], total dust	---	15	10	---
Cobalt [7440-48-4] and inorganic compounds, as Co	0.02	---	---	---
Cobalt [7440-48-4] and inorganic compounds, metal dust and fume, as Co	---	0.1	0.05	---
Chromium [7440-47-3] metal	0.5	1	0.5	---
Chromium [7440-47-3] (II) inorganic compounds, as Cr	---	0.5	0.5	---
Chromium [7440-47-3] (VI) compounds, as Cr (VI)	---	0.005	---	---
Chromium [7440-47-3] (III) inorganic compounds, as Cr	0.5	0.5	0.5	---
Chromium [7440-47-3] (VI) inorganic compounds, water-soluble, as Cr	0.05	---	0.0002	---
Chromium [7440-47-3] (VI) inorganic compounds, water-insoluble, as Cr	0.01	---	0.0002	---
Chromium [7440-47-3] (VI) inorganic compounds, water-soluble, as Cr (VI)	---	0.005	---	---
Chromium [7440-47-3] (VI) inorganic compounds, water-insoluble, as Cr (VI)	---	0.005	---	---
Copper [7440-50-8], fume, as Cu	0.2	0.1	0.1	---
Copper [7440-50-8], dusts and mists, as Cu	1	1	1	---
Copper [7440-50-8] and its inorganic compounds	---	---	---	0.01 ¹²⁾
Fluorides, as F	2.5	2.5	2.5	1 ¹³⁾
Iron oxide (Fe ₂ O ₃) [1309-37-1]	5 ¹²⁾	---	---	---
Iron oxide (Fe ₂ O ₃) [1309-37-1], fume	---	10	---	---
Iron oxide (Fe ₂ O ₃) [1309-37-1], dust and fume, as Fe	---	---	5	---
Magnesium oxide [1309-48-4]	10 ¹³⁾	---	---	4 ¹³⁾ , [1.5 ¹²⁾]
Magnesium oxide [1309-48-4], fume, total particulate	---	15	---	---
Manganese [7439-96-5] and inorganic compounds, as Mn	0.1 ¹³⁾ , [0.02 ¹²⁾]	---	1, [3 ¹⁴⁾]	0.2 ¹³⁾ , [0.02 ¹²⁾]
Manganese [7439-96-5], fume, as Mn	0.1 ¹³⁾ , [0.02 ¹²⁾]	---	1, [3 ¹⁴⁾]	0.2 ¹³⁾ , [0.02 ¹²⁾]
Molybdenum [7439-98-7] and soluble compounds, as Mo	0.5 ¹²⁾	5	---	---
Molybdenum [7439-98-7] and insoluble compounds, as Mo	10 ¹³⁾ , [3 ¹²⁾]	---	---	---
Molybdenum [7439-98-7] and insoluble compounds, total dust, as Mo	---	15	---	---
Nickel [7440-02-0], elemental	1.5 ¹³⁾	1	0.015	---
Nickel [7440-02-0] soluble compounds, as Ni (ACGIH : inorganic only)	0.1 ¹³⁾	1	0.015	---
Nickel [7440-02-0] insoluble compounds, as Ni (ACGIH : inorganic only)	0.2 ¹³⁾	1	0.015	---
Nickel [7440-02-0] compounds	---	---	0.015	---
Silica, amorphous, fused (DFG : includes [7699-41-4])	---	---	0.3 ¹²⁾	---
Silica, amorphous, fused, dust	---	A ¹²⁾¹⁵⁾	---	---
Silica, amorphous, fused, total dust	---	B ¹⁶⁾	---	---
Silica, crystalline, α-quartz	0.025 ¹²⁾	---	---	---
Silica, crystalline, α-quartz, dust	---	A ¹²⁾¹⁵⁾	0.05 ¹²⁾	---
Silica, crystalline, α-quartz, total dust	---	B ¹⁶⁾	---	---
Silicon [7440-21-3]	---	5 ¹²⁾	5 ¹²⁾	---
Silicon [7440-21-3], total dust	---	15	10	---
Tin [7440-31-5], metal	2	2	2	---
Tin [7440-31-5], oxide, as Sn	2	---	2	---
Tin [7440-31-5], oxide and inorganic compounds, except SnH ₄ , as Sn	2	---	2	---
Tin [7440-31-5], oxide and inorganic compounds, except oxide and SnH ₄ , as Sn	---	2	---	---
Tin [7440-31-5], organic compounds, as Sn	0.1, [0.2 ¹⁴⁾]	0.1	0.1	0.1 ¹³⁾
Tantalum [7440-25-7], metal	---	5	5, [10 ¹⁴⁾]	4 ¹³⁾ , [1.5 ¹²⁾]
Tantalum [7440-25-7] oxide, dust, as Ta	---	5	5, [10 ¹⁴⁾]	---
Titanium dioxide [13463-67-7]	10	---	---	---
Titanium dioxide [13463-67-7], total dust	---	15	---	---
Vanadium pentoxide [1314-62-1], as V	0.05 ¹²⁾	---	---	---
Ferrovanadium [12604-58-9] dust	1, [3 ¹⁴⁾]	1	1, [3 ¹⁴⁾]	---
Tungsten [7440-33-7] and insoluble compounds, as W	5, [10 ¹⁴⁾]	---	5, [10 ¹⁴⁾]	---
Tungsten [7440-33-7], soluble compounds, as W	1, [3 ¹⁴⁾]	---	1, [3 ¹⁴⁾]	---
Zinc oxide [1314-13-2]	2 ¹²⁾ , [10 ¹²⁾¹⁴⁾]	5 ¹²⁾	---	0.1 ¹²⁾ , [2 ¹³⁾]
Zinc oxide [1314-13-2], total dust	---	15	---	---
Zinc oxide [1314-13-2], dust only	---	---	5	---
Zinc oxide [1314-13-2], fume	---	5	5, [10 ¹⁴⁾]	0.1 ¹²⁾ , [2 ¹³⁾]
Zirconium [7440-67-7]	5, [10 ¹⁴⁾]	---	---	---
Zirconium [7440-67-7] compounds, as Zr	5, [10 ¹⁴⁾]	5	5, [10 ¹⁴⁾]	---
Zirconium [7440-67-7] insoluble compounds	---	---	5, [10 ¹⁴⁾]	1 ¹³⁾
Zirconium [7440-67-7] soluble compounds	---	---	5, [10 ¹⁴⁾]	---

(Continued) OCCUPATIONAL EXPOSURE VALUES ¹⁾ TWA ¹¹⁾ (ppm)

SUBSTANCE [CAS No.] ²⁾	ACGIH ³⁾ TLVs ⁴⁾	OSHA ⁵⁾ PELs ⁶⁾	NIOSH ⁷⁾ RELs ⁸⁾	DFG ⁹⁾ MAKs ¹⁰⁾
Phenol [108-95-2]	5	5	5	—
Carbon monoxide [630-08-0]	25	50	35	30
Carbon dioxide [124-38-9]	5000, [30000 ¹⁴⁾ , ¹⁵⁾	5000	5000, [30000 ¹⁴⁾	5000
Phosgene [75-44-5]	0.1	0.1	0.1	0.1
Hydrogen fluoride [7664-39-3] as F	0.5, [2 ¹⁴⁾	3	3	1
Nitric oxide [10102-43-9]	25	25	25	—
Nitrogen dioxide [10102-44-0]	0.2	—	1 ¹⁴⁾	0.5
Ozone [10028-15-6]	—	0.1	0.1 ¹⁴⁾	—
Heavy work	0.05	—	—	—
Moderate work	0.08	—	—	—
Light work	0.1	—	—	—
Light, moderate, or heavy workload (≤ 2 hours)	0.2	—	—	—
Phosphine [7803-51-2]	0.3, [1 ¹⁴⁾	0.3	0.3, [1 ¹⁴⁾	0.1

1) 2014 Guide to Occupational Exposure Values, ACGIH

2) Chemical Abstract Service Registry Number

3) American Conference of Governmental Industrial Hygienists

4) ACGIH Threshold Limit Values

5) U.S. Occupational Safety and Health Administration

6) OSHA Permissible Exposure Limits

7) U.S. National Institute for Occupational Safety and Health

8) NIOSH Recommended Exposure Limits

9) Deutsche Forschungsgemeinschaft

10) DFG Maximum Concentrations at the Workplace

11) Time-weighted average exposure concentration for a conventional 8-hour (TLV, PEL) or up to a 10-hour (REL) workday and a 40-hour workweek

12) Measured as respirable fraction of the aerosol.

13) Measured as inhalable fraction of the aerosol.

14) The concentration that shall not be exceeded during any part of the working exposure

15) $\frac{250\text{mppcf}}{\% \text{SiO}_2+5}$ or $\frac{10\text{mg/m}^3}{\% \text{SiO}_2+2}$ 16) $\frac{30\text{mg/m}^3}{\% \text{SiO}_2+2}$



SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Manufacturer/Supplier Name: Sandvik Wire and Heating Technologies

Address: P.O. Box 1220, Scranton, PA 18501-1220

Phone Number: (570) 585-7500

Trade Name: SANDVIK

Classification: AWS A5.9/ASME SFA 5.9, ASME SFA 5.9 Section III, MIL-E-19333, ABS, CWB-AWS A5.9

Corrosion Resisting Chromium and Chromium Nickel Steel Bare Wire and Strip Welding Electrodes and Welding Rods.

Product Type: Cr-Ni Bare Wire and Strip Electrodes and Rod for manual, semi-automatic, and automatic welding processes.

Product Identifiers: 18Cb, 307,308/308L, 308LSi, 308/308H, 347, 347Si, 347L, 316/316L, 316LSi, 316/316H, 317L, 309L, 309LCb, 309LHF, 309, 309LSi, 309MoL, 310, 310H, 312, 320, 330, 409Cb, 410, 410NiMo, 420, 430, 630,383,385, 20.25.5LCu, 21.11.LNb, 21.13.3.L, 25.22.2.LMn, 27.31.4.LCu, 22.12.HT, 2209, 25.20.L, 25.10.4.L, 16.13CMnW, 442, 439Ti, 439, 19.TiCb, 430LCb, 430LCbTi, Sandvik Sanweld® AXT

SECTION 2: HAZARDS IDENTIFICATION

Chromium-Nickel bare wire and electrodes and strip are welding consumables which are either solid wire or strip.

EMERGENCY OVERVIEW

Effects of Over-exposure:

Electric arc welding may create one or more of the following health hazards:

FUMES AND GASES can be dangerous to your health.

SHORT-TERM (acute) OVEREXPOSURE to welding fumes may result in discomfort, such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes.

LONG-TERM (chronic) OVEREXPOSURE to welding fumes can lead to siderosis (iron deposits in lungs), central nervous system, liver or kidney damage, skin and respiratory sensitization (allergic reaction), and is believed by some investigators to affect pulmonary function.

PRIMARY ROUTE OF ENTRY is the respiratory system.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing eye, respiratory or allergic conditions.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can kill.

CARCINOGENICITY:

Certain hexavalent chromium compounds, nickel metal and compounds and respirable crystalline silica are listed in the National Toxicology Program (NTP) Annual Report on Carcinogens, found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs, or listed by OSHA/ACGIH as potential carcinogens.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

The following is composition information of the product as manufactured.

Hazardous Ingredient	CAS No.	WT %
Chromium (Cr)	7440-47-3	1-30
Copper (Cu)	7440-50-8	0-4
Iron (Fe)	7439-89-6	Bal.
Manganese (Mn)	7439-96-5	1-7
Molybdenum (Mo) ¹⁾	7439-98-7	1-5
Nickel (Ni)	7440-02-0	1-35
Niobium (Nb) ²⁾	7440-03-1	0.5-1
Silicon (Si)	7440-21-3	0.4-2

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The following are typical constituents of welding fumes and gases. When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form than ingredients listed above. Decomposition products of normal operation include those originating from the volatilization reaction, or oxidation of the materials shown above, plus those from the base metal and coating, etc. which may include paint, plating, galvanizing, or phosphate coatings on steels which would produce phosphine gas and other contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities which may be decomposed by the arc into toxic gases such as phosgene).

Fume Constituent (Gases)	CAS No.	Fume Constituents (Solids)	CAS No.
Dinitrogen Tetroxide (N ₂ O ₄)	10544-72-6	Chromates (CrO ₃)	1333-82-0
Nitric Oxide (NO)	10102-43-9	Copper Oxide (CuO)	1344-70-3
Nitrogen Dioxide (NO ₂)	10102-44-0	Manganese Oxide (MnO)	11129-60-5
Ozone (O ₃)	10028-15-6	Nickel Oxide (NiO)	1314-06-3
Phosgene (COCl ₂) *	75-44-5	Iron Oxide (Fe ₂ O ₃)	1309-37-1
Phosphine (PH ₃) **	7803-51-2	Molybdenum Trioxide (MoO ₃) ¹⁾	1313-27-5
		Niobium Oxide (NbO) ²⁾	12034-57-0
		Silica (SiO ₂) (quartz)	14808-60-7

* May result from contact with chlorinated hydrocarbon vapors.

** May result from welding on phosphate coated steels.

¹⁾ Only in Molybdenum-alloyed grades.

²⁾ Only in Niobium-alloyed grades.

Refer to Section 8 for occupational exposure limits.

SECTION 4: FIRST AID MEASURES

Eye: If eye irritation occurs, flush eyes immediately with water while holding open eyelids. Get medical attention if irritation persists.

Skin: None normally needed. Get immediate medical attention for treatment of burns.

Inhalation: Remove victim to fresh air. Give artificial respiration if needed. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

(Nonflammable) – Welding arc and sparks can ignite combustibles and flammables. Refer to American National Z49.1 for fire prevention during the use of welding and allied procedures.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Pick up and return to container for use.

SECTION 7: HANDLING AND STORAGE

Avoid breathing welding fumes. Keep your head out of the fumes. Use with enough ventilation or exhaust at the arc, or both, to keep fumes and gases below the occupational exposure limits in your breathing zone and the general area. Use air sampling to determine the need for corrective action. (Refer to Section 10 for additional information)

Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Fumes from welding and oxygen depletion can alter the air quality causing injury or death.

Take appropriate precautions to prevent fires and explosion.

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, Safety in Welding and Cutting, published by the American Welding Society, P.O. Box 351040, Miami, FL 33135; and OSHA Publication 2206 (29CFR 1910), U.S. Government Printing Office, Washington, DC 20402, for more information. Assure compliance with the OSHA Standard on Chromium (VI), 29CFR 1910.1026.



Storage: Store in a clean dry area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

See Appendix A for occupational exposure limits for Canadian Provinces

The following are the occupational exposure limits for the components of the product as manufactured.

Ingredient	OSHA PEL	ACGIH TLV	ACGIH STEL
Chromium (Cr) (as metal)	1 mg/m ³ TWA	0.5 mg/m ³ TWA	-
Copper (Cu) (as dust and mists)	1 mg/m ³ TWA	1 mg/m ³ TWA	-
Iron (Fe) (as Iron oxide)	10 mg/m ³ TWA (as fume)	5 mg/m ³ TWA (respirable)	-
Manganese (Mn)	5 mg/m ³ Ceiling Limit	0.02 mg/m ³ TWA (respirable fraction) 0.1 mg/m ³ TWA (inhalable)	-
Molybdenum (Mo) ¹⁾	15 mg/m ³ TWA (total dust)	3 mg/m ³ TWA (respirable fraction) 10 mg/m ³ TWA (inhalable)	-
Nickel (Ni) (elemental)	1 mg/m ³ TWA	1.5 mg/m ³ TWA (inhalable)	-
Niobium (Nb) ²⁾	None Established	None Established	-
Silicon (Si)	5 mg/m ³ TWA (respirable fraction) 15 mg/m ³ TWA (total dust)	None Established	-

The following are the occupational exposure limits for the typical decomposition products.

GASES			
Fume Constituent	OSHA PEL	ACGIH TLV	ACGIH STEL
Dinitrogen Tetroxide (N ₂ O ₄)	None Established	None Established	-
Nitric Oxide (NO)	25 ppm TWA	25 ppm TWA	-
Nitrogen Dioxide (NO ₂)	5 ppm Ceiling	3 ppm TWA	-
Ozone (O ₃)	0.1 ppm TWA	0.1 ppm ***	-
Phosgene (COCl ₂) *	0.1 ppm TWA	0.1 ppm TWA	-
Phosphine (PH ₃) **	0.3 ppm TWA	0.3 ppm TWA	1 ppm

SOLIDS			
Fume Constituents	OSHA PEL	ACGIH TLV	ACGIH STEL
Chromates (CrO ₃) (CrVI)	0.005 mg/m ³ TWA (as CrVI) 0.0025 action level	0.05 mg/m ³ TWA water soluble(as Cr) 0.01 mg/m ³ TWA certain water insoluble (as Cr)	-
Chromium (III) Compounds	0.5 mg/m ³ TWA (as Cr)	0.5 mg/m ³ TWA (as Cr)	-
Copper Oxide (CuO) (as copper fume)	0.1 mg/m ³ TWA	0.2 mg/m ³ TWA	-
Iron Oxide	10 mg/m ³ TWA (as fume)	5 mg/m ³ TWA (respirable)	-
Manganese Oxide (MnO) (as Mn)	5 mg/m ³ Ceiling (fume)	0.2 mg/m ³ TWA (fume)	-
Molybdenum Trioxide (MoO ₃) ¹⁾ (as Mo)	15 m/m ³ TWA (total dust)	3 mg/m ³ TWA (respirable fraction) 10 mg/m ³ TWA (inhalable)	-
Nickel Oxide (NiO) (as Ni)	1 mg/m ³ TWA	0.2 mg/m ³ TWA (inhalable)	-
Niobium Oxide (NbO) ²⁾	None Established	None Established	-
Silica (SiO ₂) (quartz)	10 (respirable fraction) TWA 30 (total dust) TWA %SiO ₂ +2 TWA	0.025 mg/m ³ TWA (respirable fraction)	-

¹⁾ Only in Molybdenum-alloyed grades.

²⁾ Only in Niobium-alloyed grades.



Definitions:

Permissible Exposure Limit (PEL) OSHA (29CFR 1910) – An exposure limit that is published and enforced by OSHA as a legal standard.

Threshold Limit Value (TLV) – American Conference of Governmental Industrial Hygienists – Time weighted average (TWA) concentration for a normal 8-hour work day and a 40-hour work week to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

Short Term Exposure Limit (STEL) OSHA (29CFR 1910) – A 15-minute time weighted average exposure which should not be exceeded at any time during a work day.

Ceiling Limit – The concentration that should not be exceeded during any part of the working exposure.

* May result from contact with chlorinated hydrocarbon vapors.

** May result from welding on phosphate coated steels.

*** For light work: 0.1ppm; for moderate work: 0.08ppm; and for heavy work: 0.05ppm of O₃.

Ventilation: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below TLV/PEL in the workers' breathing zone and the general area. Train each welder to keep his/her head out of the fumes. Refer to ANSI Z49.1 and Section 10 for additional information.

Respiratory Protection: Use respirable fume respirator or air-supplied respirator when welding in confined area, or where local exhaust or ventilation does not keep exposure below TLV/PEL. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, OSHA 1910.1026, ANSI Z88.2 and good Industrial Hygiene practice.

Protective Clothing: Wear head, hand, and body protection to help prevent injury from radiation, sparks, and electric shock. See ANSI Z49.1 and OSHA 1910.1026. At a minimum, this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, and dark substantial clothing. Train each welder not to touch live electrical parts, and to insulate his/her person from work and ground.

Eye Protection: Wear helmet or use face shield with filter lens. Lens filter should be as dark as possible without obstructing view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Chromium-Nickel bare wire and electrodes and strip are welding consumables which are either solid wire or strip.

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under normal conditions of storage or use.

Incompatibility/Conditions to Avoid: None known. Welding arc and sparks can ignite combustibles and flammables. Refer to American National Z49.1 for fire prevention during the use of welding and allied procedures.

Hazardous Decomposition Product

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, and the process, procedures, and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, galvanizing, or phosphate coatings on steels which would produce phosphine gas), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities which may be decomposed by the arc into toxic gases such as phosgene).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form than ingredients in the manufactured product. Typical decomposition is also listed in Section 3. Decomposition products of normal operation include those originating from the volatilization reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc., as noted above.



One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's helmet, if worn, or in the worker's breathing zone. See ANSI/AWS F1.1, available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

SECTION 11: TOXICOLOGICAL INFORMATION

No acute toxicity data is available; however, these products are not expected to be acutely toxic. See Section 2 for information on human health effects.

SECTION 12: ECOLOGICAL INFORMATION

No specific data is available. These products are not expected to present an environmental hazard.

SECTION 13: DISPOSAL INFORMATION

WASTE DISPOSAL METHOD: Prevent waste from contaminating the surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally accepted manner, in full compliance with federal, state, and local regulations.

SECTION 14: TRANSPORT INFORMATION

These products are not regulated for transportation under DOT, IATA or IMDG.

SECTION 15: REGULATORY INFORMATION

CERCLA 103 Reportable Quantity: These products are not subject to CERCLA reporting requirement.

SARA TITLE III:

Hazard Category for Section 311/312: Acute Health, Chronic Health

Section 313 (40CFR 372) Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements:

Chromium*	7440-47-3	1-30%
Copper*	7440-50-8	0-4%
Manganese*	7440-96-5	1-5%
Nickel*	7440-02-0	1-35%

* This includes all compounds of these elements.

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

California Proposition 65: This product contains chromium and nickel, which are known to the State of California to cause cancer.

Canadian Environmental Protection Act: All of the ingredients are listed on the Canadian Domestic Substances List.

Canadian WHMIS Classification: Class D-2-A (Very Toxic Material causing other toxic effects)

This SDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

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EU RoHS: Finished welds using Sandvik welding consumables are RoHS compliant. Sandvik Stainless Steel Welding Products contain Chromium. When welded Sandvik Stainless Steel Welding Products will produce Cr VI (hexavalent chrome), however, the weld deposit does not contain Cr VI as it will all be in the zero valent state or as Cr III as an oxide. Finished products manufactured using Sandvik Stainless Steel Welding Products will not contain Cr VI.

SECTION 16: OTHER INFORMATION

HMIS Ratings:	Health – 1*	Flammability - 0	Instability - 0
NFPA Ratings:	Health - 1	Flammability - 0	Physical Hazard - 0

* indicates the potential for chronic health effects.

SDS Updated July 2013 Comprehensive Review. Updated exposure limits.

DISCLAIMER: This product is intended for use only by qualified individuals experienced and trained in welding safety. Conditions of use and suitability of the product for particular uses are beyond our control, and while the information herein is given in good faith, SANDVIK MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nor does Sandvik assume any liability arising out of use of the product described herein. In no event shall Sandvik be liable for any special, incidental, or consequential damages in connection with this SDS.

Appendix A**Occupational Exposure Limits for Canadian Provinces**

The following are the occupational exposure limits for the components of the product as manufactured.

Ingredient	CAS	Ontario	Quebec	British Columbia
Chromium (Cr) (as chromium metal)	7440-47-3	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA
Copper (Cu) (as copper dust and mist)	7440-50-8	1 mg/m ³ TWA	1 mg/m ³ TWA	1 mg/m ³ TWA
Iron (Fe) (as iron oxide)	7439-89-6	5 mg/m ³ TWA (respirable dust)	5 mg/m ³ TWA	5 mg/m ³ TWA
Manganese (Mn) (as Mn and inorganic compounds)	7439-96-5	0.2 mg/m ³ TWA	5 mg/m ³ TWA	0.2 mg/m ³ TWA
Molybdenum (Mo) ¹⁾ (as Mo and insoluble compounds)	7439-98-7	3 mg/m ³ TWA respirable 10 mg/m ³ TWA inhalable	10 mg/m ³ TWA (as insoluble compounds)	3 mg/m ³ TWA respirable 10 mg/m ³ TWA inhalable
Nickel (Ni)	7440-02-0	1 mg/m ³ TWA inhalable (metal) 0.2 mg/m ³ TWA inhalable (insoluble)	1.0 mg/m ³ TWA (as metal and insoluble compounds)	0.05 mg/m ³ TWA (as metal and inorganic compounds)
Niobium (Nb) ²⁾	7440-03-1	None Established	None Established	None Established
Silicon (Si)	7440-21-3	10 mg/m ³ TWA total dust	10 mg/m ³ TWA total dust	10 mg/m ³ TWA total dust (as PNOC)

The following are the occupational exposure limits for the typical decomposition products.

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GASES			
Fume Constituent	Ontario	Quebec	British Columbia
Dinitrogen Tetroxide (N ₂ O ₄)	None Established	None Established	None Established
Nitric Oxide (NO)	25 ppm TWA	25 ppm TWA	25 ppm TWA
Nitrogen Dioxide (NO ₂)	3 ppm TWA 5 ppm STEL	3 ppm TWA	1 ppm Ceiling
Ozone (O ₃)	0.1 ppm TWA 0.3 ppm STEL	0.1 ppm Ceiling	0.1 ppm TWA***
Phosgene (COCl ₂) *	0.1 ppm TWA	0.1 ppm TWA	0.1 ppm TWA
Phosphine (PH ₃) **	0.3 ppm TWA 1 ppm STEL	0.3 ppm TWA 1 ppm STEL	0.3 ppm TWA 1 ppm STEL

SOLIDS			
Fume Constituent f	Ontario	Quebec	British Columbia
Chromates (CrO ₃) (CrVI)	0.01 mg/m3 TWA (as insoluble compounds) 0.05 mg/m3 TWA (as hexavalent chromium comp)	0.01 mg/m3 TWA (as water insoluble comp) 0.05 mg/m3 TWA (as water soluble comp)	0.01 mg/m3 TWA (insoluble) 0.025 mg/m3 TWA (water soluble) 0.1 mg/m3 Ceiling
Chromium (III) Compounds	0.5 mg/m3 TWA	0.5 mg/m3 TWA	0.5 mg/m3 TWA
Copper Oxide (CuO) (as copper fume)	0.2 mg/m3 TWA	0.2 mg/m3 TWA	0.2 mg/m3 TWA
Iron Oxide (as fume)	5 mg/m3 TWA respirable	5 mg/m3 TWA	5 mg/m3 TWA 10 mg/m3 STEL
Manganese oxide (MnO) (as Mn inorganic compounds)	0.2 mg/m3 TWA	5 mg/m3 TWA	0.2 mg/m3 TWA
Molybdenum Trioxide (MoO ₃) ¹⁾ (as insoluble compounds)	3 mg/m3 TWA (respirable) 10 mg/m3 TWA (inhalable)	3 mg/m3 TWA (respirable)	3 mg/m3 TWA (as respirable) 10 mg/m3 TWA (inhalable)
Nickel Oxide (NiO) (as nickel soluble compounds)	0.1 mg/m3 TWA (inhalable)	0.1 mg/m3 TWA	0.05 mg/m3 TWA
Niobium Oxide (NbO) ²⁾	None Established	None Established	None Established
Silica (SiO ₂) (quartz)	0.1 mg/m3 TWA	0.1 mg/m3 TWA (respirable)	0.025 mg/m3 TWA

The following are the occupational exposure limits for the components of the product as manufactured.

Ingredient	CAS	Prince Edward Island Newfoundland and Labrador	Saskatchewan	Alberta
Chromium (Cr)	7440-47-3	0.5 mg/m3 TWA	0.5 mg/m3 TWA 1.5 mg/m3 STEL	0.5 mg/m3 TWA
Copper (Cu) (as copper dust and mist)	7440-50-8	1 mg/m3 TWA	1 mg/m3 TWA	1 mg/m3 TWA
Iron (Fe) (as iron oxide)	7439-89-6	5 mg/m3 TWA (respirable)	5 mg/m3 TWA 10 mg/m3 STEL (dust and fume)	5 mg/m3 TWA (respirable)
Manganese (Mn) (as Mn metal and inorganic compounds)	7439-96-5	0.2 mg/m3 TWA	0.2 mg/m3 TWA 0.6 mg/m3 STEL	0.2 mg/m3 TWA
Molybdenum (Mo) ¹⁾ (as Mo and insoluble compounds)	7439-98-7	3 mg/m3 TWA (respirable fraction) 10 mg/m3 TWA inhalable)	3 mg/m3 TWA (respirable) 6 mg/m3 STEL 10 mg/m3 TWA (inhalable) 20 mg/m3 STEL	3 mg/m3 TWA (respirable) 10 mg/m3 TWA (total dust)

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<u>Ingredient</u>	<u>CAS</u>	<u>Prince Edward Island</u> <u>Newfoundland and Labrador</u>	<u>Saskatchewan</u>	<u>Alberta</u>
Nickel (Ni) (as nickel metal)	7440-02-0	1.5 mg/m3 TWA (inhalable)	1.5 mg/m3 TWA (inhalable fraction) 3 mg/m3 STEL	1.5 mg/m3 TWA
Niobium (Nb) ²⁾	7440-03-1	None Established	None Established	None Established
Silicon (Si)	7440-21-3	None Established	10 mg/m3 TWA 20 mg/m3 STEL	3 mg/m3 TWA (respirable) 10 mg/m3 TWA (total dust) (as PNOC)

The following are the occupational exposure limits for the typical decomposition products.

GASES			
<u>Fume Constituent</u>	<u>Prince Edward Island</u> <u>Newfoundland and Labrador</u>	<u>Saskatchewan</u>	<u>Alberta</u>
Dinitrogen Tetroxide (N ₂ O ₄)	None Established	None Established	None Established
Nitric Oxide (NO)	25 ppm TWA	25 ppm TWA 38 ppm STEL	25 ppm TWA
Nitrogen Dioxide (NO ₂)	3 ppm TWA 5 ppm STEL	3 ppm TWA 5 ppm STEL	3 ppm TWA 5 ppm STEL
Ozone (O ₃)	0.1 ppm TWA***	0.05 ppm TWA 0.15 ppm STEL	0.1 ppm TWA 0.3 ppm STEL
Phosgene (COCl ₂) *	0.1 ppm TWA	0.1 ppm TWA 0.3 ppm STEL	0.1 ppm TWA
Phosphine (PH ₃) **	0.3 ppm TWA 1 ppm STEL	0.3 ppm TWA 1 ppm STEL	0.3 ppm TWA 1 ppm STEL

SOLIDS			
<u>Fume Constituent</u>	<u>Prince Edward Island</u> <u>Newfoundland and Labrador</u>	<u>Saskatchewan</u>	<u>Alberta</u>
Chromates (CrO ₃) (CrVI)	0.05 mg/m3 TWA (water soluble comp) 0.01 mg/m3 TWA (certain water insoluble comp)	0.05 mg/m3 TWA, 0.15 mg/m3 STEL (soluble) 0.01 mg/m3 TWA 0.03 mg/m3 STEL (insoluble)	0.05 mg/m3 TWA (soluble comp) 0.01 mg/m3 TWA (as insoluble compounds)
Chromium (III) Compounds	0.5 mg/m3 TWA	0.5 mg/m3 TWA 1.5 mg/m3 STEL	0.5 mg/m3 TWA
Copper Oxide (CuO) (as copper fume)	0.2 mg/m3 TWA	0.3 mg/m3 TWA 0.6 mg/m3 STEL	0.2 mg/m3 TWA
Iron Oxide	5 mg/m3 TWA (respirable)	5 mg/m3 TWA 10 mg/m3 STEL (as fume)	5 mg/m3 TWA (respirable)
Manganese Oxide (MnO)	0.2 mg/m3 TWA (as fume)	0.2 mg/m3 TWA 0.6 mg/m3 STEL (as inorganic compound)	0.2 mg/m3 TWA (inorganic compound)
Molybdenum Trioxide (MoO ₃) (as molybdenum insoluble compounds)	3 mg/m3 TWA (respirable fraction) 10 mg/m3 TWA (inhalable)	3 mg/m3 TWA, 6 mg/m3 STEL (respirable) 10 mg/m3 TWA, 20 mg/m3 STEL (total dust)	3 mg/m3 TWA respirable 10 mg/m3 TWA (total dust)
Nickel Oxide (NiO) (as nickel soluble compounds)	0.1 mg/m3 TWA	0.1 mg/m3 TWA, 0.3 mg/m3 STEL	0.1 mg/m3 (soluble)

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SOLIDS			
<u>Fume Constituent</u>	<u>Prince Edward Island</u> <u>Newfoundland and Labrador</u>	<u>Saskatchewan</u>	<u>Alberta</u>
Niobium Oxide (NbO) ²⁾	None Established	None Established	None Established
Silica (SiO ₂) (quartz)	0.025 mg/m ³ TWA	0.005 mg/m ³ TWA	0.025 mg/m ³ TWA (respirable)

The following are the occupational exposure limits for the components of the product as manufactured.

<u>Ingredient</u>	<u>CAS</u>	<u>Nunavut</u> <u>Northwest Territories</u>	<u>Yukon</u>	<u>Nova Scotia</u> <u>New Brunswick</u> <u>Manitoba</u>
Chromium (Cr) (as chromium metal)	7440-47-3	0.5 mg/m ³ TWA (as Cr metal) 1.5 mg/m ³ STEL	0.1 mg/m ³ TWA (as Cr metal) 3 mg/m ³ STEL	0.5 mg/m ³ TWA
Copper (Cu) (as copper dust and mist)	7440-50-8	1 mg/m ³ TWA 2 mg/m ³ STEL	1 mg/m ³ TWA 2 mg/m ³ STEL	1 mg/m ³ TWA
Iron (Fe) (as iron oxide)	7439-89-6	5 mg/m ³ TWA (as fume) 10 mg/m ³ STEL	5 mg/m ³ TWA (as fume) 10 mg/m ³ STEL	5 mg/m ³ TWA (respirable dust)
Manganese (Mn) (as Mn and inorganic compounds)	7439-96-5	5 mg/m ³ Ceiling	5mg/m ³ TWA	0.2 mg/m ³ TWA
Molybdenum (Mo) ¹⁾ (as Mo and insoluble compounds)	7439-98-7	10 mg/m ³ TWA 20 mg/m ³ STEL	10 mg/m ³ TWA 20 mg/m ³ STEL	3 mg/m ³ TWA respirable 10 mg/m ³ TWA inhalable
Nickel (Ni)	7440-02-0	1 mg/m ³ TWA 2 mg/m ³ STEL	1 mg/m ³ TWA 3 mg/m ³ STEL	1.5 mg/m ³ TWA inhalable
Niobium (Nb) ²⁾	7440-03-1	None Established	None Established	None Established
Silicon (Si)	7440-21-3	5 mg/m ³ TWA (respirable) 10 mg/m ³ TWA (total dust)	10 mg/m ³ TWA 20 mg/m ³ STEL	None Established

The following are the occupational exposure limits for the typical decomposition products.

GASES			
<u>Fume Constituent</u>	<u>Nunavut</u> <u>Northwest Territories</u>	<u>Yukon</u>	<u>Nova Scotia</u> <u>New Brunswick</u> <u>Manitoba</u>
Dinitrogen Tetroxide (N ₂ O ₄)	None Established	None Established	None Established
Nitric Oxide (NO)	25 ppm TWA 35 ppm STEL	25 ppm TWA 35 ppm STEL	25 ppm TWA
Nitrogen Dioxide (NO ₂)	3 ppm TWA 5 ppm STEL	5 ppm TWA	3 ppm TWA 5 ppm STEL
Ozone (O ₃)	0.1 ppm TWA 0.3 ppm STEL	0.1 ppm TWA 0.3 ppm STEL	0.1 ppm TWA ***
Phosgene (COCl ₂) *	0.1 ppm TWA 0.3 ppm STEL	0.1 ppm TWA 0.3 ppm STEL	0.1 ppm TWA

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GASES			
<u>Fume Constituent</u>	<u>Nunavut</u> <u>Northwest Territories</u>	<u>Yukon</u>	<u>Nova Scotia</u> <u>New Brunswick</u> <u>Manitoba</u>
Phosphine (PH ₃) **	0.3 ppm TWA 1 ppm STEL	0.3 ppm TWA 1 ppm STEL	0.3 ppm TWA 1 ppm STEL

SOLIDS			
<u>Fume Constituent</u>	<u>Nunavut</u> <u>Northwest Territories</u>	<u>Yukon</u>	<u>Nova Scotia</u> <u>New Brunswick</u> <u>Manitoba</u>
Chromates (CrO ₃) (CrVI)	0.05 mg/m ³ TWA 0.15 mg/m ³ STEL (soluble or insoluble compounds)	0.1 mg/m ³ TWA 0.1 mg/m ³ STEL (as chromates))	0.05 mg/m ³ TWA (as water soluble comp) 0.01 mg/m ³ TWA (ascertain water insoluble comp)
Chromium (III) Compounds	0.5 mg/m ³ TWA 1.5 mg/m ³ STEL	0.15 mg/m ³ TWA 0.15 mg/m ³ STEL	0.5 mg/m ³ TWA
Copper Oxide (CuO) (as copper fume)	0.2 mg/m ³ TWA 0.6 mg/m ³ STEL	0.2 mg/m ³ TWA 0.2 mg/m ³ STEL	0.2 mg/m ³ TWA 0.1 mg/m ³ STEL
Iron Oxide	5 mg/m ³ TWA 10 mg/m ³ STEL (as fume)	5 mg/m ³ TWA 10 mg/m ³ STEL (as fume)	5 mg/m ³ TWA
Manganese Oxide (MnO)	1 mg/m ³ TWA 3 mg/m ³ STEL (as fume)	5 mg/m ³ TWA (as Mn compounds)	0.2 mg/m ³ TWA
Molybdenum Trioxide (MoO ₃) ¹⁾ (as molybdenum insoluble compounds)	10 mg/m ³ TWA 20 mg/m ³ STEL	10 mg/m ³ TWA 10 mg/m ³ STEL	3 mg/m ³ TWA (as respirable) 10 mg/m ³ TWA (inhalable)
Nickel Oxide (NiO) (as nickel soluble compounds)	0.1 mg/m ³ TWA 0.3 mg/m ³ STEL	0.1 mg/m ³ TWA 0.3 mg/m ³ STEL	0.1 mg/m ³ TWA
Niobium Oxide (NbO) ²⁾	None Established	None Established	None Established
Silica (SiO ₂) (quartz)	0.1 mg/m ³ TWA (respirable) 0.3 mg/m ³ TWA (total dust)	300 particles/mL	0.025 mg/m ³ TWA

¹⁾ Only in Molybdenum-alloyed grades.

²⁾ Only in Niobium-alloyed grades.

QUESTIONS 14, 15

PAINT	USED SINCE 9/1/2010				
PAINT	DESCRIPTION	GALLONS	MONTHLY AVG.	MIXED ON SITE	
E61A45 1	KEM FLASH PRIMER	2610	51.18	AS IS	
E61A750 2	KEM FLASH 500	180	45.00	AS IS	
E61A705 3	ULTRA BOND	280	70.00	AS IS	
B67A5 4	2 PART EPOXY	75	25.00	MIXED	
B67C5 5	CATALYST	75	25.00	MIXED	
XYLENE 6		705	11.75		
R7K54 7	REDUCER	27	9.00		

Questions 14, 15

1
5 pages**MATERIAL SAFETY DATA SHEET**E61A45
33 00DATE OF PREPARATION
Oct 23, 2014**SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION****PRODUCT NUMBER**

E61A45

PRODUCT NAME

KEM-FLASH® PRIME Metal Primer, Gray

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY

101 Prospect Avenue N.W.
Cleveland, OH 44115**Telephone Numbers and Websites**

Product Information	www.oem.sherwin-williams.com
Regulatory Information	(216) 566-2902
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
30	64742-89-8	Lt. Aliphatic Hydrocarbon Solvent		
		ACGIH TLV	300 PPM	12 mm
		OSHA PEL	300 PPM	
6	64742-88-7	Med. Aliphatic Hydrocarbon Solvent		1.27 mm
		ACGIH TLV	100 PPM	
		OSHA PEL	100 PPM	
0.2	100-41-4	Ethylbenzene		7.1 mm
		ACGIH TLV	20 PPM	
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
1	1330-20-7	Xylene		5.9 mm
		ACGIH TLV	100 PPM	
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
0.1	14808-60-7	Quartz		
		ACGIH TLV	0.025 mg/m3 as Resp. Dust	
		OSHA PEL	0.1 mg/m3 as Resp. Dust	
10	14807-96-6	Talc		
		ACGIH TLV	2 mg/m3 as Resp. Dust	
		OSHA PEL	2 mg/m3 as Resp. Dust	
18	7727-43-7	Barium Sulfate		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
8	13463-67-7	Titanium Dioxide		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
% by Weight		Ingredient		
0.89		Barium (as Ba; total)		

SECTION 3 — HAZARDS IDENTIFICATION**ROUTES OF EXPOSURE**

INHALATION of vapor or spray mist.

EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE**EYES:** Irritation.**SKIN:** Prolonged or repeated exposure may cause irritation.**INHALATION:** Irritation of the upper respiratory system.**HMIS Codes**

Health	2*
Flammability	3
Reactivity	0

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES**EYES:** Flush eyes with large amounts of water for 15 minutes. Get medical attention.**SKIN:** Wash affected area thoroughly with soap and water.

Remove contaminated clothing and laundry before re-use.

INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.**INGESTION:** Do not induce vomiting. Get medical attention immediately.**SECTION 5 — FIRE FIGHTING MEASURES****FLASH POINT**

50 °F PMCC

LEL

0.9

UEL

7.0

FLAMMABILITY CLASSIFICATION

RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.

Application to hot surfaces requires special precautions.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE**STORAGE CATEGORY**

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION**PRECAUTIONS TO BE TAKEN IN USE**

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m³ (total dust), 3 mg/m³ (respirable fraction), OSHA PEL 15 mg/m³ (total dust), 5 mg/m³ (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding, wirebrushing, abrading, burning or welding the dried film, wear a particulate respirator approved by NIOSH/MSHA for protection against non-volatile materials in Section 2.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	10.24 lb/gal	1227 g/l
SPECIFIC GRAVITY	1.23	
BOILING POINT	240 - 395 °F	115 - 201 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	63%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	
VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)		
	3.94 lb/gal 473 g/l	Less Water and Federally Exempt Solvents
	3.94 lb/gal 472 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable**CONDITIONS TO AVOID**

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide, Oxides of Metals in Section 2

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

Crystalline Silica (Quartz, Cristobalite) is listed by IARC and NTP. Long term exposure to high levels of silica dust, which can occur only when sanding or abrading the dry film, may cause lung damage (silicosis) and possibly cancer.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

TOXICOLOGY DATA

CAS No.	Ingredient Name			
64742-89-8	Lt. Aliphatic Hydrocarbon Solvent	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
64742-88-7	Med. Aliphatic Hydrocarbon Solvent	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
100-41-4	Ethylbenzene	LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	Xylene	LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
14808-60-7	Quartz	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
14807-96-6	Talc	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
7727-43-7	Barium Sulfate	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
13463-67-7	Titanium Dioxide	LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL INFORMATION**

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS**WASTE DISPOSAL METHOD**

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Waste must be tested for ignitability and extractability to determine the applicable EPA hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).

Larger Containers are Regulated as:

UN1263, PAINT, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

UN1263, PAINT, 3, PG II, (ERG#128)

Canada (TDG)

UN1263, PAINT, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.

UN1263, PAINT, CLASS 3, PG II, (10 C c.c.), EmS F-E, S-E**IATA/CAO**

UN1263, PAINT, 3, PG II

SECTION 15 — REGULATORY INFORMATION**SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION**

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	0.2	
1330-20-7	Xylene	1	
	Zinc Compound	2	1.2
	Barium Compound	2	0.8

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

2
(5 pages)

MATERIAL SAFETY DATA SHEET

E61A750
05 00

DATE OF PREPARATION
May 20, 2015

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER

E61A750

PRODUCT NAME

KEM-FLASH® 500 Primer, Light Gray

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	www.oem.sherwin-williams.com
Regulatory Information	(216) 566-2902
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
0.1	100-41-4	Ethylbenzene		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
3	64742-95-6	Light Aromatic Hydrocarbons		
		ACGIH TLV	Not Available	3.8 mm
		OSHA PEL	Not Available	
1	108-67-8	1,3,5-Trimethylbenzene		
		ACGIH TLV	25 PPM	2 mm
		OSHA PEL	25 PPM	
4	95-63-6	1,2,4-Trimethylbenzene		
		ACGIH TLV	25 PPM	2.03 mm
		OSHA PEL	25 PPM	
15	108-10-1	Methyl Isobutyl Ketone		
		ACGIH TLV	50 PPM	16 mm
		ACGIH TLV	75 PPM STEL	
		OSHA PEL	50 PPM	
		OSHA PEL	75 PPM STEL	
5	14807-96-6	Talc		
		ACGIH TLV	2 mg/m3 as Resp. Dust	
		OSHA PEL	2 mg/m3 as Resp. Dust	
24	1317-65-3	Calcium Carbonate		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
10	7727-43-7	Barium Sulfate		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
9	13463-67-7	Titanium Dioxide		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.

EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE

EYES: Irritation.

SKIN: Prolonged or repeated exposure may cause irritation.

INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.

SKIN: Wash affected area thoroughly with soap and water.

Remove contaminated clothing and launder before re-use.

INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES**FLASH POINT**

65 °F PMCC

LEL

0.7

UEL

7.5

FLAMMABILITY CLASSIFICATION

RED LABEL — Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.

Application to hot surfaces requires special precautions.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE**STORAGE CATEGORY**

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally.

Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION**PRECAUTIONS TO BE TAKEN IN USE**

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m³ (total dust), 3 mg/m³ (respirable fraction), OSHA PEL 15 mg/m³ (total dust), 5 mg/m³ (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	12.82 lb/gal	1536 g/l
SPECIFIC GRAVITY	1.54	
BOILING POINT	237 - 360 °F	113 - 182 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	47%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	
VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)		
3.25 lb/gal	390 g/l	Less Water and Federally Exempt Solvents
3.25 lb/gal	389 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide, Phosphoric Acid Fumes, Oxides of Phosphorus

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene	LC50 RAT LD50 RAT	4HR	Not Available 3500 mg/kg
64742-95-6	Light Aromatic Hydrocarbons	LC50 RAT LD50 RAT	4HR	Not Available Not Available
108-67-8	1,3,5-Trimethylbenzene	LC50 RAT LD50 RAT	4HR	Not Available Not Available
95-63-6	1,2,4-Trimethylbenzene	LC50 RAT LD50 RAT	4HR	Not Available Not Available
108-10-1	Methyl Isobutyl Ketone	LC50 RAT LD50 RAT	4HR	Not Available 2080 mg/kg
14807-96-6	Talc	LC50 RAT LD50 RAT	4HR	Not Available Not Available
1317-65-3	Calcium Carbonate	LC50 RAT LD50 RAT	4HR	Not Available Not Available
7727-43-7	Barium Sulfate	LC50 RAT LD50 RAT	4HR	Not Available Not Available
13463-67-7	Titanium Dioxide	LC50 RAT LD50 RAT	4HR	Not Available Not Available

SECTION 12 — ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL INFORMATION**

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS**WASTE DISPOSAL METHOD**

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).

Larger Containers are Regulated as:

UN1263, PAINT, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Methyl isobutyl ketone 5000 lb RQ

Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

UN1263, PAINT, 3, PG II, (ERG#128)

Canada (TDG)

UN1263, PAINT, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.

UN1263, PAINT, CLASS 3, PG II, (18 C c.c.), EmS F-E, S-E**IMO**

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.

UN1263, PAINT, CLASS 3, PG II, (18 C c.c.), EmS F-E, S-E**IATA/ICAO**

UN1263, PAINT, 3, PG II

SECTION 15 — REGULATORY INFORMATION**SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION**

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	0.1	
95-63-6	1,2,4-Trimethylbenzene	4	
108-10-1	Methyl Isobutyl Ketone	15	
	Zinc Compound	7	3.4

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

3
(5 pages)

MATERIAL SAFETY DATA SHEET

E61A705
10 00

DATE OF PREPARATION
Aug 23, 2014

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER

E61A705

PRODUCT NAME

KEM FLASH® ULTRA-BOND® Primer, Gray

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY

101 Prospect Avenue N.W.

Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	www.oem.sherwin-williams.com
Regulatory Information	(216) 566-2902
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
0.1	100-41-4	Ethylbenzene		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
10	108-10-1	Methyl Isobutyl Ketone		
		ACGIH TLV	50 PPM	16 mm
		ACGIH TLV	75 PPM STEL	
		OSHA PEL	50 PPM	
		OSHA PEL	75 PPM STEL	
16	123-86-4	n-Butyl Acetate		
		ACGIH TLV	150 PPM	10 mm
		ACGIH TLV	200 PPM STEL	
		OSHA PEL	150 PPM	
		OSHA PEL	200 PPM STEL	
1	7631-86-9	Amorphous Silica		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	6 mg/m3 as Dust	
33	1317-65-3	Calcium Carbonate		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
10	13463-67-7	Titanium Dioxide		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
3	1314-13-2	Zinc Oxide		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.

EYE or SKIN contact with the product, vapor or spray mist.

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

EFFECTS OF OVEREXPOSURE**EYES:** Irritation.**SKIN:** Prolonged or repeated exposure may cause irritation.**INHALATION:** Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the urinary system
- the hematopoietic (blood-forming) system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES**EYES:** Flush eyes with large amounts of water for 15 minutes. Get medical attention.**SKIN:** Wash affected area thoroughly with soap and water.

Remove contaminated clothing and launder before re-use.

INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.**INGESTION:** Do not induce vomiting. Get medical attention immediately.**SECTION 5 — FIRE FIGHTING MEASURES****FLASH POINT**

61 °F PMCC

LEL

1.4

UEL

7.6

FLAMMABILITY CLASSIFICATION

RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.

Application to hot surfaces requires special precautions.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE**STORAGE CATEGORY**

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are **FLAMMABLE**. Keep away from heat, sparks, and open flame.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION**PRECAUTIONS TO BE TAKEN IN USE**

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m³ (total dust), 3 mg/m³ (respirable fraction), OSHA PEL 15 mg/m³ (total dust), 5 mg/m³ (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	11.78 lb/gal	1411 g/l
SPECIFIC GRAVITY	1.42	
BOILING POINT	237 - 264 °F	113 - 128 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	47%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	
VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)		
3.32 lb/gal	398 g/l	Less Water and Federally Exempt Solvents
3.32 lb/gal	398 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY**STABILITY — Stable****CONDITIONS TO AVOID**

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION**CHRONIC HEALTH HAZARDS**

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

TOXICOLOGY DATA

CAS No.	Ingredient Name			
100-41-4	Ethylbenzene	LC50 RAT LD50 RAT	4HR	Not Available 3500 mg/kg
108-10-1	Methyl Isobutyl Ketone	LC50 RAT LD50 RAT	4HR	Not Available 2080 mg/kg
123-86-4	n-Butyl Acetate	LC50 RAT LD50 RAT	4HR	2000 ppm 13100 mg/kg
7631-86-9	Amorphous Silica	LC50 RAT LD50 RAT	4HR	Not Available Not Available
1317-65-3	Calcium Carbonate	LC50 RAT LD50 RAT	4HR	Not Available Not Available
13463-67-7	Titanium Dioxide	LC50 RAT LD50 RAT	4HR	Not Available Not Available
1314-13-2	Zinc Oxide	LC50 RAT LD50 RAT	4HR	Not Available Not Available

SECTION 12 — ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL INFORMATION**

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS**WASTE DISPOSAL METHOD**

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).

Larger Containers are Regulated as:

UN1263, PAINT, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

n-Butyl acetate 5000 lb RQ

Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

UN1263, PAINT, 3, PG II, (ERG#128)

Canada (TDG)

UN1263, PAINT, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.

UN1263, PAINT, CLASS 3, PG II, MARINE POLLUTANT, (16 C c.c.), (ZINC OXIDE), EmS F-E, S-E

IATA/ICAO

UN1263, PAINT, 3, PG II

SECTION 15 — REGULATORY INFORMATION**SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION**

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	0.1	
108-10-1	Methyl Isobutyl Ketone	10	
	Zinc Compound	6	3.5

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

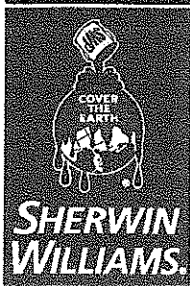
TSCA CERTIFICATION

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SECTION 16 — OTHER INFORMATION

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Protective RECOATABLE EPOXY PRIMER

& Marine Coatings

PART G	B67A5	LIGHT GRAY
PART G	B67H5	TAN
PART G	B67R5	RED OXIDE
PART G	B67WJ5000	WHITE
PART H	B67V5	HARDENER

Revised: Sept 8, 2015

PRODUCT INFORMATION

4.45

PRODUCT DESCRIPTION

RECOATABLE EPOXY PRIMER is a rust inhibitive high build catalyzed polyamide/bisphenol A epoxy primer designed for fast dry and quick or extended recoatability.

- Meets Class A requirements for Slip Coefficient, .50 (Red Oxide only)
- Long pot life
- High build coating for economical application
- One year recoatability
- Low temperature application - down to 35°F (1.5°C)
- Corrosion resistant (contains zinc phosphate)
- Outstanding application properties

PRODUCT CHARACTERISTICS

Finish:	Flat
Color:	Red Oxide, Tan, Light Gray, White
Volume Solids:	65% ± 4%, mixed
Weight Solids:	81% ± 2%, mixed
VOC (EPA Method 24):	Unreduced: <320 g/L; 2.67 lb/gal mixed Reduced 5%: <340 g/L; 2.88 lb/gal
Mix Ratio:	1:1 by volume

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	6.0 (150)	9.0 (225)
Dry mils (microns)	4.0* (100)	6.0* (150)
~Coverage sq ft/gal (m²/L)	175 (4.3)	260 (6.4)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1040 (25.5)	

*See Performance Tips section

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 6.0 mils wet (150 microns):

	@ 35°F/1.5°C	@ 77°F/25°C	@ 120°F/49°C
		50% RH	
To touch:	1 hour	15 minutes	10 minutes
Tack free:	2 hours	30 minutes	15 minutes
To recoat:			
minimum:	6 hours	2 hours	30 minutes
maximum:	1 year	1 year	1 year
To cure:	14 days	14 days	2 days
If maximum recoat time is exceeded, abrade surface before recoating.			
Drying time is temperature, humidity, and film thickness dependent.			
Pot Life:	8+ hours	8 hours	3 hours
Sweat-in-time:	1 hour	30 minutes	10 minutes

Shelf Life:	36 months, unopened indoors at 40°F (4.5°C) to 100°F (38°C).	Store
Flash Point:	80°F (27°C), PMCC, mixed	
Reducer/Clean Up:	Reducer #54, R7K54 or R7K111	
Below 80°F (27°C):	Reducer #100, R7K100,	
Above 80°F (27°C):	R7K104, or R7K111	
In California	Reducer R7K111	

RECOMMENDED USES

For use as a shop or field applied epoxy primer where a variable recoat window is required due to construction schedules, distribution logistics and environmental considerations. Affords flexibility in projects when completion schedules cannot be specified.

- Primer for structural steel
 - Paper mills
 - Power plants
 - Suitable for use in USDA inspected facilities
 - Nuclear Power Plants
 - Nuclear fabrication shops
 - This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities*.
- Marine applications
 - Storage tanks
 - DOE Nuclear Fuel Facilities
 - DOE Nuclear Weapons Facilities

* Nuclear qualifications are NRC license specific to the facility.

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP6/NACE 3

System Tested*:

1 ct. Recoatable Epoxy Primer @ 5.0 mils (125 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	200 mg loss
Accelerated Weathering - QUV¹	ASTM D4587, QUV-A, 5,000 hours	Passes
Adhesion	ASTM D4541	1050 psi
Corrosion Weathering	ASTM D5894, 13 cycles, 4,368 hours	Rating 10 per ASTM D714 for Blistering; Rating 7 per ASTM D610 for Rusting
Direct Impact Resistance	ASTM D2794	160 in. lbs.
Dry Heat Resistance	ASTM D2485	250°F (121°C) (dis-colors)
Flexibility	ASTM D522, 180° bend, 1" mandrel	Passes
Moisture Condensation Resistance	ASTM D4585, 100°F (38°C), 2000 hours	Passes, no cracking or delamination
Pencil Hardness	ASTM D3363	3H
Salt Fog Resistance¹	ASTM B117, 5,600 hours	Passes, no cracking or delamination
Slip Coefficient, Red Oxide**	AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts	Class A, 0.50
Surface Burning*	ASTM E84/NFPA 255	Flame Spread Index 15; Smoke Development Index 30

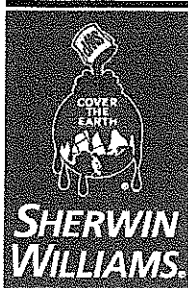
*System tested (Report No. IM54.1157-02-01):
Recoatable Epoxy Primer @ 4.6 mils (115 microns) dft
Macropoxy 646 @ 5.0 mils (125 microns) dft

**Refer to Slip Certification document

Epoxy coatings may darken or yellow following application and curing. Provides performance comparable to products formulated to federal specifications: Mil-P-23377, Mil-P-53022

Footnotes:

¹ Acrolon 218 HS topcoat



Protective RECOATABLE EPOXY PRIMER & Marine Coatings

PART G	B67A5	LIGHT GRAY
PART G	B67H5	TAN
PART G	B67R5	RED OXIDE
PART G	B67WJ5000	WHITE
PART H	B67V5	HARDENER

Revised: Sept 8, 2015

APPLICATION BULLETIN

4.45

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the cans. Then combine one part by volume of Part G with one part by volume of Part H. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated. Re-stir before using.

If reducer solvent is used, add only after both components have been thoroughly mixed, after sweat-in.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	6.0 (150)	9.0 (225)
Dry mils (microns)	4.0* (100)	6.0* (150)
~Coverage sq ft/gal (m ² /L)	175 (4.3)	260 (6.4)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1040 (25.5)	

*See Performance Tips section

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 6.0 mils wet (150 microns):

	@ 35°F/1.5°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	1 hour	15 minutes	10 minutes
Tack free:	2 hours	30 minutes	15 minutes
To recoat:			
minimum:	6 hours	2 hours	30 minutes
maximum:	1 year	1 year	1 year
To cure:	14 days	14 days	2 days

If maximum recoat time is exceeded, abrade surface before recoating.

Drying time is temperature, humidity, and film thickness dependent.

Pot Life:	8+ hours	8 hours	3 hours
Sweat-in-time:	1 hour	30 minutes	10 minutes

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #54, R7K54. Clean tools immediately after use with Reducer #54, R7K54. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #54, R7K54.

Material must be at least 50°F (10°C) prior to catalyzing.

Quik-Kick Epoxy Accelerator is acceptable for use. See data page 4.99 for details.

When coating over aluminum and galvanizing, recommended dft is 2-4 mils (50-100 microns).

Refer to Product Information sheet for additional performance characteristics and properties.

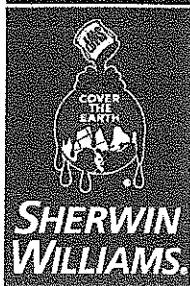
SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



Protective RECOATABLE EPOXY PRIMER

& Marine Coatings

PART G	B67A5	LIGHT GRAY
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PART H	B67V5	HARDENER

Revised: Sept 8, 2015

APPLICATION BULLETIN

4.45

SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel (atmospheric service)

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel the same day as it is cleaned.

Galvanized Steel

Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1. When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned.

In preparing galvanized steel substrates for the application of FIRETEX intumescent coating systems, Surface Preparation Specification SSPC-SP 16 must be followed obtaining a surface profile of minimum 1.5 mils (38 microns). Optimum surface profile will not exceed 2.0 mils (50 microns).

Previously Painted Surfaces

If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

APPLICATION CONDITIONS

Temperature:	
air and surface:	35°F (1.6°C) minimum, 140°F (60°C) maximum
material:	50°F (10°C) minimum At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up

Below 80°F (27°C)	Reducer #54, R7K54 or R7K111
Above 80°F (27°C)	Reducer #100, R7K100, R7K104 or R7K111
In California	Reducer R7K111

Airless Spray

Pressure	2400 psi
Hose	1/4" ID
Tip	.017"
Filter	60 mesh
Reduction	As needed up to 5% by volume

Brush

Brush	Natural Bristle
Reduction	Not recommended

Roller

Cover	3/8" - 1/2" woven with solvent resistant core
Reduction	Not recommended

Plural Component Spray ... Acceptable

Refer to April 2010 Technical Bulletin - "Application Guidelines for Macropoxy 646 & Recoatable Epoxy Primer Utilizing Plural Component Equipment"

If specific application equipment is not listed above, equivalent equipment may be substituted.

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	St 2	DC St 2	SP 2	-
Pitted & Rusted	St 3	DC St 3	SP 3	-
Power Tool Cleaning	St 3	DC St 3	SP 3	-



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& Marine Coatings

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Revised: Sept 8, 2015

PRODUCT INFORMATION

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RECOMMENDED SYSTEMS

		Dry Film Thickness / ct.	
		Mils	(Microns)
Steel, catalyzed epoxy topcoat:			
1 ct.	Recoatable Epoxy Primer	4.0-6.0	(100-150)
2 cts.	Tile-Clad HS Epoxy	2.5-4.0	(63-100)
Steel, polyurethane topcoat:			
1 ct.	Recoatable Epoxy Primer	4.0-6.0	(100-150)
1-2 cts.	Hi-Solids Polyurethane	3.0-4.0	(75-100)
Steel, acrylic epoxy topcoat:			
1 ct.	Recoatable Epoxy Primer	4.0-6.0	(100-150)
2 cts.	Water Based Catalyzed Epoxy	2.5-3.0	(63-75)
Steel, acrylic topcoat:			
1 ct.	Recoatable Epoxy Primer	4.0-6.0	(100-150)
2 cts.	Pro Industrial DTM Acrylic Coating	2.5-4.0	(63-100)
Galvanized:			
1 ct.	Recoatable Epoxy Primer	4.0-6.0	(100-150)
2 cts.	Tile-Clad HS Epoxy	2.5-4.0	(63-100)
FIRETEX ONLY:			
Steel & Galvanized Substrates being primed for FIRETEX only:			
1 ct.	Recoatable Epoxy Primer	2.0-5.0	(50-125)

The systems listed above are representative of the product's use, other systems may be appropriate.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:
 Iron & Steel: SSPC-SP6/NACE 3, 2 mil (50 micron) profile
 Galvanizing*: SSPC-SP1

*See Surface Preparations section on page 3 for application of FIRETEX intumescent coating systems

Surface Preparation Standards					
Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE	
White Metal	Sa 3	Sa 3	SP 5	1	
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2	
Commercial Blast	Sa 2	Sa 2	SP 7	3	
Brush-Off Blast	Sa 1	Sa 1	SP 3	4	
Hand Tool Cleaning	St 2	St 2	SP 2	-	
Pitted & Rusty	St 2	St 2	SP 2	-	
Rusty	St 3	St 3	SP 3	-	
Power Tool Cleaning	Pitted & Rusty	St 3	SP 3	-	

TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature:
 air and surface: 35°F (1.6°C) minimum, 140°F (60°C) maximum
 material: 50°F (10°C) minimum
 At least 5°F (2.8°C) above dew point
 Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:
 Part G: 1 gallon (3.78L) and 5 gallon (18.9L) containers
 Part H: 1 gallon (3.78L) and 5 gallon (18.9L) containers
 Weight: 13.26 ± 0.2 lb/gal ; 1.6 Kg/L, mixed

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

COMPANY: PACKAGING SERVICE CO., INC.
PRODUCT IDENTITY: CROWN XYLLOL (XYLENE)
NEW MSDS DATE: 12/3/2007

DATE: 12/3/07
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(5 pages)

MATERIAL SAFETY DATA SHEET

This Material Safety Data Sheet conforms to the requirements of ANSI Z400.1. THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD). IMPORTANT: Read this MSDS before handling & disposing of this product. Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

PRODUCT IDENTITY: CROWN XYLLOL (XYLENE)
COMPANY IDENTITY: PACKAGING SERVICE CO., INC.
COMPANY ADDRESS: 1904 MYKAWA ROAD
COMPANY CITY: PEARLAND, TX 77581
COMPANY PHONE: 1-281-485-1458
CHEMTREC PHONE: 1-800-424-9300

XYL001

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

CONTAINS:

75-85% MIXED XYLENES (1330-20-7)[215-535-7],
15-25% ETHYLBENZENE (100-41-4)[202-849-4]

Number in parentheses is CAS #, number in brackets is European EC #.

This product is hazardous as defined in 29 CFR 1910.1200, based on the following compositional information:

OSHA HAZARD

Flammable
OSHA PEL;ACGIH TLV
Eye Irritant
Possible Carcinogen

COMPONENT

Xylenes; Ethylbenzene
Xylenes; Ethylbenzene
Xylene
Ethylbenzene

SECTION 3. HAZARDS IDENTIFICATION

RISK STATEMENTS:

Flammable Liquid
R36/37/38 Irritating to eyes, respiratory system and skin.
R20/65 Harmful by inhalation may cause lung damage if swallowed.

SAFETY STATEMENTS:

S16 Keep away from sources of ignition. No smoking.
S29 Do not empty into drains.
S24/25 Avoid contact with skin and eyes.

INHALATION: High vapor/aerosol concentrations (attainable at elevated temperatures well above ambient) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death. Negligible hazard at ambient temperature (-18 to 38 Deg C; 0 to 100 Deg F)

INGESTION: Small amounts of this product aspirated into the respiratory system during ingestion or vomiting may cause mild to severe pulmonary injury, possibly progressing to death. Low order of toxicity.

CHRONIC EFFECTS: This product contains ethylbenzene. The International Agency for Research on Cancer (IARC) has evaluated ethylbenzene and classified it as a possible human carcinogen (group 2B) based on sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans.

SECTION 4. FIRST AID MEASURES

EYE CONTACT: For eyes, flush with plenty of water for 15 minutes & get medical attention.

SKIN CONTACT: In case of contact with skin immediately remove contaminated clothing. Wash thoroughly with soap & water. Wash contaminated clothing before reuse.

INHALATION: After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped give artificial respiration.

COMPANY: PACKAGING SERVICE CO., INC.
PRODUCT IDENTITY: CROWN XYL0L (XYLENE)
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SWALLOWING: If swallowed, CALL A PHYSICIAN IMMEDIATELY! Do NOT induce vomiting. Have patient lie down & keep warm. Vomiting may lead to pneumonitis, which may be fatal.

XYL001

SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: NFPA Class B extinguishers (Carbon Dioxide or foam) for Class I C liquid fires.

FLASH POINT: 79 Deg F. **METHOD:** TCC ASTM D56 **NOTE:** Minimum

FLAMMABLE LIMITS: LEL: 1.9 UEL: 12.3 @ 77 Deg F. **NOTE:** Approximate

AUTOIGNITION TEMP.: 932 Deg F. **NOTE:** Approximate

SPECIAL FIRE FIGHTING PROCEDURES: Water spray may be ineffective on fire but can protect fire fighters & cool closed containers. Shut off fuel to fire. Use foam or dry chemical to extinguish fire. Use fog nozzles if water is used. Do not enter confined fire-space without full bunker gear. Respiratory and eye protection required for fire fighting personnel. (Helmet with face shield, bunker coats, gloves & rubber boots). Use NIOSH approved positive-pressure self-contained breathing apparatus.

UNUSUAL EXPLOSION AND FIRE PROCEDURES FLAMMABLE!! VAPORS CAN CAUSE FLASH FIRE. This liquid is volatile and gives off invisible vapors. Keep container tightly closed. Isolate from oxidizers, heat, sparks, electric equipment & open flame. Closed containers may explode if exposed to extreme heat. Applying to hot surfaces requires special precautions. Empty container very hazardous! Continue all label precautions!

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS: Fumes, smoke, and carbon monoxide.

SECTION 6. ACCIDENTAL RELEASE MEASURES

CONTAINMENT TECHNIQUES: Stop spill at source. Dike area & contain.

CLEAN-UP PROCEDURES: Clean up remainder with non-combustible absorbent materials. Mop up & dispose of. Persons without proper protection should be kept from area until cleaned up. If spilled on water, eliminate sources of ignition. Warn occupants and shipping in surrounding and downwind areas of fire and explosion hazard and request all to stay clear. Remove from surface with suitable adsorbents. If allowed by local authorities and environmental agencies, sinking and/or suitable dispersants may be used in non-confined waters. Consult an expert on disposal of recovered material and ensure conformity to local disposal regulations.

SECTION 7. HANDLING AND STORAGE

HANDLING: Isolate from oxidizers, heat, sparks, electric equipment & open flame. Use only with adequate ventilation. Avoid breathing of vapor or spray mist. Avoid prolonged or repeated contact with skin. Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse. Avoid free fall of liquid.

ELECTROSTATIC ACCUMULATION HAZARD. Ground containers when transferring. Do not flame cut, saw, drill, braze, or weld. Empty container very hazardous! Continue all label precautions!

STORAGE: Do not store above 49 C/120 F. Store large amounts in structures made for OSHA Class I C liquids. Keep container tightly closed & upright when not in use to prevent leakage.

OSHA Class I C liquids

STORAGE TEMPERATURE Deg F: Ambient

LOADING/UNLOADING TEMPERATURE Deg F: Ambient

STORAGE/TRANSPORT PRESSURE mmHg: Atmospheric

LOADING/UNLOADING VISCOSITY cSt: 0.7

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

EXPOSURE CONTROLS: Ventilate to keep vapors of this material below 50 ppm. If over TLV, in accordance with 29 CFR 1910.134, use NIOSH approved positive-pressure self-contained breathing apparatus. Consult Safety Equipment Supplier. Use explosion-proof equipment.

VENTILATION:

LOCAL EXHAUST: Necessary

MECHANICAL (GENERAL): Acceptable

SPECIAL: None

OTHER: None

COMPANY: PACKAGING SERVICE CO., INC.
PRODUCT IDENTITY: CROWN XYLLOL (XYLENE)
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PERSONAL PROTECTIONS: Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse.

WORK & HYGIENIC PRACTICES: Provide readily accessible eye wash stations & safety showers. Wash at end of each workshift & before eating, smoking or using the toilet. Promptly remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

WORKPLACE EXPOSURE GUIDELINES

OSHA REGULATION 29CFR1910.1000 REQUIRES THE FOLLOWING PERMISSIBLE EXPOSURE LIMITS:

A TWA of 100 ppm (435 mg/m³) and a STEL of 150 ppm (655 mg/m³) for Xylenes.

A TWA of 100 ppm (435 mg/m³) and a STEL of 125 ppm (545 mg/m³) for Ethyl Benzene.

THE ACGIH RECOMMENDS THE FOLLOWING THRESHOLD LIMIT VALUES:

A TWA of 100 ppm (434 mg/m³) and a STEL of 150 ppm (651 mg/m³) for Xylene, with an A4 designation.

A TWA of 100 ppm (434 mg/m³) and a STEL of 125 ppm (543 mg/m³) for Ethyl Benzene with an A3 designation.

SECTION 9. PHYSICAL DATA

APPEARANCE:	Liquid, Water-White
ODOR:	Aromatic
BOILING RANGE:	136 140 142 C / 278 284 288 F
AUTO IGNITION TEMPERATURE:	510 C / 950 F (Lowest Component)
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	1.1
FLASH POINT (TEST METHOD):	27 C / 81 F (TCC)
FLAMMABILITY CLASSIFICATION:	Class I C
GRAVITY @ 60 F:	
API:	31.1
SPECIFIC GRAVITY (Water=1):	.870
POUNDS/GALLON:	7.247
VOC'S (>0.44 Lbs/Sq In):	100.1 Vol. % / 871.0 g/L / 7.255 Lbs/Gal
TOTAL VOC'S (TVOC):	100.0 Vol. % / 870.0 g/L / 7.247 Lbs/Gal
NONEXEMPT VOC'S (CVOC):	100.0 Vol. % / 870.0 g/L / 7.247 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	100.0 Wt. % / 870.0 g/L / 7.247 Lbs/Gal
VAPOR PRESSURE (mm of Hg)@20 C / 37 C	6.4 / 14.2
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	6.4
VAPOR DENSITY (air=1):	3.7
WATER ABSORPTION:	Negligible
REFRACTIVE INDEX:	1.496
FREEZING/ MELTING TEMP °F	-31
EVAPORATION RATE n-Bu Acetate=1	0.8 - Approximate
SOLUBILITY IN WATER, wt. % at Deg F:	0.02 at 77 Calculated
VISCOSITY OF LIQUID, cSt at Deg F:	0.7 at 77 Approximate

SECTION 10. STABILITY & REACTIVITY

STABILITY: Stable

CONDITIONS TO AVOID: Isolate from oxidizers, heat, sparks, electric equipment & open flame.

MATERIALS TO AVOID: Isolate from strong oxidizers such as permanganates, chromates & peroxides, concentrated nitric and sulphuric acids, halogen, and molten sulphur. Temperatures above ambient.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide from burning.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

MATERIAL	CAS #	TWA (OSHA)	TLV (ACGIH)	HAP
Mixed Xylenes	1330-20-7	100 ppm	100 ppm A4	Yes
Ethylbenzene	100-41-4	100 ppm	100 ppm A3	Yes

In addition to EPA Hazardous Air Pollutants showing 'Yes' under "HAP" above, using manufacturers' data, based on EPA Method 311, the following EPA Hazardous Air Pollutants may be present in trace amounts (less than 0.1%): Benzene, Toluene, Cumene. Refer to Section 13 for additional potential health effects.

MATERIAL	CAS #	CEILING	STEL (OSHA/ACGIH)
Mixed Xylenes	1330-20-7	None Known	150 ppm
Ethylbenzene	100-41-4	None Known	125 ppm

ACUTE HAZARDS

EYE & SKIN CONTACT: Primary irritation to skin, defatting, dermatitis. Absorption thru skin increases exposure. Primary irritation to eyes, redness, tearing, blurred vision. Liquid can cause eye irritation. Wash thoroughly after handling.

INHALATION: Anesthetic. Irritates respiratory tract. Acute overexposure can cause serious nervous system depression. Vapor harmful. Acute overexposure can cause damage to kidneys, blood, nerves, liver & lungs.

SWALLOWING: Harmful or fatal if swallowed. Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.

SUBCHRONIC HAZARDS/CONDITIONS AGGREGATED

CONDITIONS AGGREGATED: Chronic overexposure can cause damage to kidneys, blood, nerves, liver & lungs. Persons with severe skin, liver or kidney problems should avoid use.

CHRONIC HAZARDS

CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS: Potential Cancer Hazard based on tests with laboratory animals using Ethylbenzene. Overexposure may create cancer risk. Leukemia been reported in humans from Benzene. This product may contain less than 100 ppm of Benzene. Not considered hazardous in such low concentrations. Absorption thru skin may be harmful. Studies with laboratory animals indicate this product can cause damage to fetus.

SECTION 12. ECOLOGICAL INFORMATION

MAMMALIAN INFORMATION:

MATERIAL	CAS #	LOWEST KNOWN LETHAL DOSE DATA
		LOWEST KNOWN LD50 (ORAL)
Xylene	1330-20-7	4000.0 mg/kg(Rats)
		LOWEST KNOWN LC50 (VAPORS)
Xylene	1330-20-7	5000 ppm (Mice)

AQUATIC ANIMAL INFORMATION: The most sensitive known marine group to any component of this product is: Fish are adversely affected by components of this product.

MOBILITY: This material is a mobile liquid.

DEGRADABILITY: This product is non-biodegradable.

ACCUMULATION: This product does not accumulate or biomagnify in the environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If questions exist, contact the appropriate agencies.

COMPANY: PACKAGING SERVICE CO., INC.
PRODUCT IDENTITY: CROWN XYLLOL (XYLENE)
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SECTION 14. TRANSPORT INFORMATION

DOT SHIPPING NAME: UN 1307, Xylene, 3, PG III
DRUM LABEL: (FLAMMABLE LIQUID)
49 CFR 173.150 allows "consumer commodity" quantities in packaging of one gallon or less to be reclassified as ORM-D material.
IATA / ICAO: UN 1307, Xylene, 3, PG III
IMO / IMDG: UN 1307, Xylene, 3, UN1307, PG III

If >118 pounds of this product is in one container, the RQ is exceeded.

EMERGENCY RESPONSE GUIDEBOOK NUMBER: 130

SECTION 15. REGULATORY INFORMATION

STATE REGULATIONS: CALIFORNIA PROPOSITION 65: This product contains the following chemical known to the State of California to cause cancer: Ethylbenzene

TSCA: Components of this product are listed on the TSCA Inventory. Clean Water Act/Oil Pollution Act: This product is classified as an oil under Section 311 of the Clean Water Act (40 CFR 110) and the Oil Pollution Act of 1990. Discharge or spills which produce a visible sheen on either surface water, or in waterways/sewers which lead to surface water, must be reported to the National Response Center at 800-424-8802.

CERCLA: If the reportable quantity of this product is accidentally spilled, the incident is subject to the provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and must be reported to the National Response Center by calling 800-424-8802. The reportable spill quantity of this product is 118 pounds. It contains: Xylene, Ethylbenzene.

SARA TITLE III: Under the provisions of Title III, Sections 311/312 of the Superfund Amendments and Reauthorization Act, this product is classified into the following hazard categories: Immediate health, Delayed Health, Fire. This information may be subject to the provisions of the Community Right-to-Know Reporting Requirements (40 CFR 370) if threshold quantity criteria are met. This product contains the following Section 313 Reportable Ingredients:

<u>COMPONENT</u>	<u>CAS #</u>	<u>MAX. %</u>
Xylene	1330-20-7	85.0
Ethyl Benzene	100-41-4	25.0

INTERNATIONAL REGULATIONS: The components of this product are listed on the chemical inventories of the following countries: Australia, Canada, Europe (EINECS), Japan, Korea, United Kingdom.

SECTION 16. OTHER INFORMATION

HAZARD RATINGS:

HEALTH (NFPA): 2 **HEALTH (HMIS):** 2 **FLAMMABILITY:** 3 **REACTIVITY:** 0

This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

EMPLOYEE TRAINING: Employees should be made aware of all hazards of this material (as stated in this MSDS) before handling it.

NOTICE: The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency. Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process. Unless revised this MSDS is effective until 12/3/2010.

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(4 pages)

MATERIAL SAFETY DATA SHEET

R7K54
07 00

DATE OF PREPARATION
Dec 12, 2014

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER

R7K54

PRODUCT NAME

Reducer No. 54

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY
101 Prospect Avenue N.W.
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 524-5979 www.sherwin-williams.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
4	100-41-4	Ethylbenzene	ACGIH TLV OSHA PEL OSHA PEL	7.1 mm
			20 PPM 100 PPM 125 PPM STEL	
22	1330-20-7	Xylene	ACGIH TLV ACGIH TLV OSHA PEL OSHA PEL	5.9 mm
			100 PPM 150 PPM STEL 100 PPM 150 PPM STEL	
23	64-17-5	Ethanol	ACGIH TLV OSHA PEL	44 mm
			1000 PPM 1000 PPM	
51	108-10-1	Methyl Isobutyl Ketone	ACGIH TLV ACGIH TLV OSHA PEL OSHA PEL	16 mm
			50 PPM 75 PPM STEL 50 PPM 75 PPM STEL	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.
Contains alcohols and acetates which can be absorbed through the skin.

EFFECTS OF OVEREXPOSURE

EYES: Irritation.

SKIN: Prolonged or repeated exposure may cause irritation.

INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.

SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and laundry before re-use.

INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT

55 °F PMCC

LEL

1.0

UEL

19.0

FLAMMABILITY CLASSIFICATION

RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.

Application to hot surfaces requires special precautions.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

DOL Storage Class IB

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally.

Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PROTECTIVE EQUIPMENT

Use of barrier cream on exposed skin is recommended.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).

Larger Containers are Regulated as:

UN1263, PAINT RELATED MATERIAL, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Ethylbenzene 1000 lb RQ

Methyl isobutyl ketone 5000 lb RQ

Xylenes (isomers and mixture) 100 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN1263, PAINT RELATED MATERIAL, 3, PG II, (XYLENES (ISOMERS AND MIXTURE)), (ERG#128)

Canada (TDG)

UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.

UN1263, PAINT RELATED MATERIAL, CLASS 3, PG II, (13 C c.c.), EmS

F-E, S-E

IATA/ICAO

UN1263, PAINT RELATED MATERIAL, 3, PG II

SECTION 15 — REGULATORY INFORMATION

SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
100-41-4	Ethylbenzene	4	
1330-20-7	Xylene	22	
108-10-1	Methyl Isobutyl Ketone	51	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

question #16

SDS Safety Data Sheet

Landa

LANDA®

Phosphatizer

MSDS Number: L914472

Revision Date: April 10, 2014

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PRODUCT AND COMPANY IDENTIFICATION

Manufacturer

Kärcher North America, Inc
325 South Price Road
Chandler, AZ 85224

Phone: 360-833-1600
Fax: 360-833-9200
Email: info@karcherna.com
Web: www.karcher.com

Product Name: Phosphatizer
Revision Date: April 10, 2014
Version: 44-36B
MSDS Number: L914472

In case of emergency: INFOTRAC 1-800-535-5053 International 1-352-323-3500

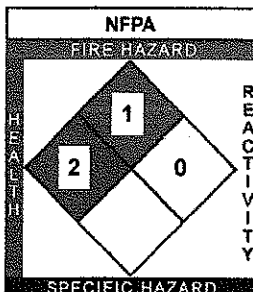
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HAZARDS IDENTIFICATION

Route of Entry: Eye; Skin; Inhalation
Target Organs: Eye; Skin; Respiratory system
Inhalation: Respiratory tract irritation may occur with exposure to a large amount of material.
Skin Contact: May cause irritation, tearing and redness.
Eye Contact: Irritating to eyes; eye damage may occur.
Ingestion: Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.

NFPA:
HMIS III:

Health = 2, Fire = 1, Reactivity = 0
H2/F1/PH0



HMIS III		
HEALTH	2	
FLAMMABILITY	1	
PHYSICAL HAZARDS	0	
PERSONAL PROTECTION B Safety Glasses, Gloves		

PERSONAL PROTECTION INDEX											
A	Goggles										
B	Goggles	+	Gloves								
C	Goggles	+	Gloves	+	Respirator						
D	Goggles	+	Gloves	+	Respirator	+	Full Face				
E	Goggles	+	Gloves	+	Respirator	+	Full Face	+	Full Body		
F	Goggles	+	Gloves	+	Respirator	+	Full Face	+	Full Body	+	Full Body
Consult your supervisor or S.O.R. for "SPECIAL" handling directions											
A	Safety Glasses	n	Safety Goggles	o	Full Face Respirator	p	Full Face Respirator	q	Full Face Respirator	r	Full Face Respirator
t	Full Face Respirator	u	Full Face Respirator	w	Full Face Respirator	y	Full Face Respirator	z	Full Face Respirator		

GHS Classifications:

Health, Acute toxicity, 5 Oral
Health, Skin corrosion/irritation, 3

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Health, Serious Eye Damage/Eye Irritation, 2 B

GHS Phrases:

Warning, H303 - May be harmful if swallowed
Warning, H316 - Causes mild skin irritation
Warning, H320 - Causes eye irritation

GHS Precautionary Statements:

Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do.
Continue rinsing.
Call a POISON CENTER or doctor/physician if you feel unwell.
If eye irritation persists: Get medical advice/attention.

GHS PICTOGRAMS: No GHS Pictograms

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HAZARDS IDENTIFICATION

Ingredients:

CAS #	Percentage	Chemical Name
144-62-7	<0.2%	Oxalic acid
111-76-2	<3%	Ethylene glycol monobutyl ether
7664-38-2	<2%	Phosphoric acid

OSHA Regulatory Status:

This SDS contains valuable information critical to the safe handling and proper use of this product. This SDS should be retained and available for employees and other users of this product.

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FIRST AID MEASURES

Inhalation: If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention.
Skin Contact: Wash with soap and water. If irritation persists consult medical personnel.
Eye Contact: Immediately flush eyes with large amounts of water for at least 15 minutes, lifting eyelids occasionally to facilitate irrigation. Get immediate medical attention.
Ingestion: If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. If injured party is conscious, give two glasses of water. Seek medical attention.

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FIRE FIGHTING MEASURES

Flash Point: 100 °C / 212 °F
Flash Point Method: Closed Cup

Wear self-contained breathing apparatus and other protective clothing. Use any standard agent - choose the one most appropriate for type of surrounding fire.

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ACCIDENTAL RELEASE MEASURES

Isolate area; keep unnecessary personnel away. Do not discharge into drains. Ventilate closed spaces before entering. Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. Wear appropriate protective equipment and clothing during cleanup. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

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HANDLING AND STORAGE

Handling Precautions:

Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling.

Storage Requirements:

Store out of reach of children; keep container closed; store in a cool, well-ventilated place.

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EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94).

Personal Protective Equip:

HMIS PP, B | Safety Glasses, Gloves

Ethylene glycol butyl ether 111-76-2 OSHA PEL 50 ppm - 240 mg/m3

Phosphoric Acid 7664-38-2 OSHA PEL 1 mg/m3

Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

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PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Clear colorless

Physical State:

Liquid

Spec Grav./Density:

9.34 lb/gal

pH:

3.08 as is

Odor:

Detergent - Solvent

Solubility:

Soluble

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STABILITY AND REACTIVITY

Stability:

Product is stable under normal conditions.

Conditions to Avoid:

None Known

Materials to Avoid:

None Known

Hazardous Decomposition:

Exposure to fire may liberate carbon dioxide, carbon monoxide, organic acids, and other unidentified thermal decomposition products from this product or its packaging.

Hazardous Polymerization:

Will not occur.

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TOXICOLOGICAL INFORMATION

Toxicity Data:

Oxalic Acid 144-62-7

Oral (LD 50): Not listed on RTECS

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Intraperitoneal (injection) 270 mg/kg - Mouse

Inhalation (LC 50): Not listed on RTECS

Skin irritation: Mild

Eye irritation: Severe

Sensitation: Not considered an occupational sensitizer

Ethylene glycol butyl ether 111-76-2

Oral (LD 50): 917 mg/kg - Rat

Inhalation (LC 50): 2900 mg/m3/7H - Rat

Skin irritation: Mild

Eye irritation: Mild

Sensitation: Not considered an occupational sensitizer

Phosphoric Acid 7664-38-2

Oral (LD 50): 1200 mg/kg - Rat

Inhalation (LC 50): 25.5 mg/m3 - rat

Skin irritation: Severe

Eye irritation: Severe

Sensitation: Not considered an occupational sensitizer

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ECOLOGICAL INFORMATION

On the basis of available information, this material is not expected to produce any significant environmental effects when recommended use instructions are followed.

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DISPOSAL CONSIDERATIONS

Recommendation: consultation with the disposal agency and the relevant authorities; cleansing agent is water.

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TRANSPORT INFORMATION

Ship in accordance with 49 CFR parts 100-185. Non-hazardous for air, sea and road freight.

SDS

Safety Data Sheet

Landa

LANDA®

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REGULATORY INFORMATION

COMPONENT / (CAS/PERCENT) / CODES

*Oxalic acid (144627 <0.2%) MASS, OSHAWAC, PA, TSCA, TXAIR, WHMIS

*Ethylene glycol monobutyl ether (111762 <3%) MASS, OSHAWAC, PA, TSCA, TXAIR, WHMIS

*Phosphoric acid (7664382 <2%) CERCLA, CSWHS, EPCRAWPC, MASS, NJHS, OSHAWAC, SARA313, TSCA, TXAIR, WHMIS

REGULATORY KEY DESCRIPTIONS

All components are listed on TSCA

CERCLA = Superfund clean up substance
CSWHS = Clean Water Act Hazardous substances
EPCRAWPC = EPCRA Water Priority Chemicals
MASS = MA Massachusetts Hazardous Substances List
NJHS = NJ Right-to-Know Hazardous Substances
OSHA WAC = OSHA workplace Air Contaminants
PA = PA Right-To-Know List of Hazardous Substances
SARA313 = SARA 313 Title III Toxic Chemicals
TXAIR = TX Air Contaminants with Health Effects Screening Level
WHMIS = Workplace Haz Mat Info Sys Canada

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OTHER INFORMATION

This document is prepared in accordance with 29 CFR 1910.1200. The purpose of this section is to ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees.

All information appearing herein is based upon data obtained from the raw material manufacturer and/or recognized technical sources. While the information above is believed to be true and accurate, the author makes no representations as to its accuracy or sufficiency. Conditions of use are beyond the manufacturer's control; therefore the users are responsible to verify this data under their own particular conditions, applications and regulations to determine if the product is suitable for their particular purposes. The users assume all risks of product use, handling, disposal, reliance upon, publication or use of the information contained herein. This information applies only to the product designated above and does not necessarily apply to its use in combination with other materials, products, chemical compounds, structures or processes.

Prepared by: EHS Manager